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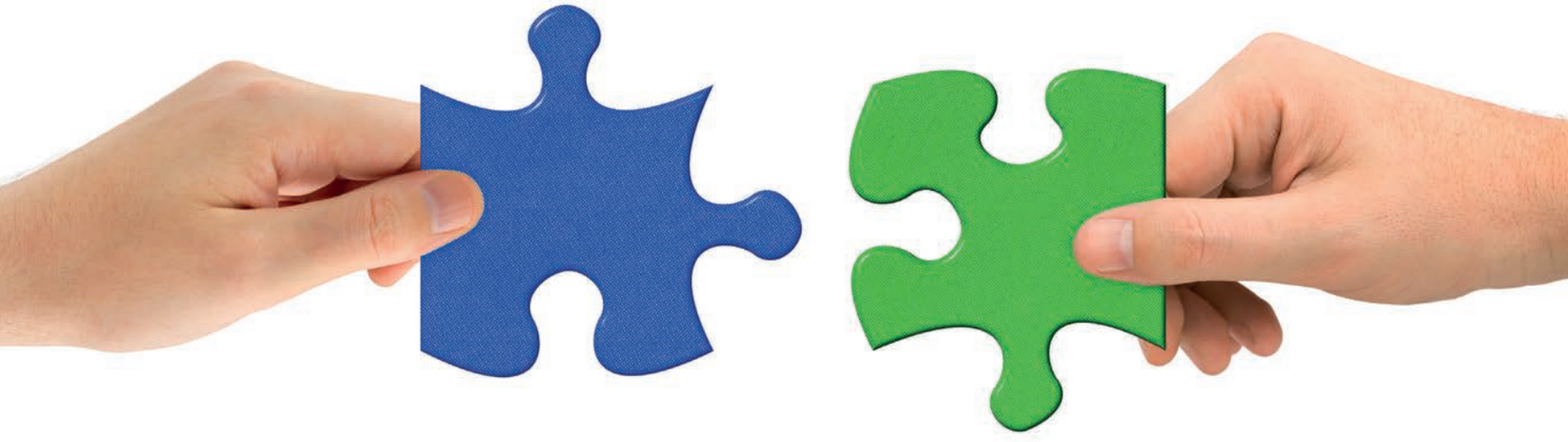

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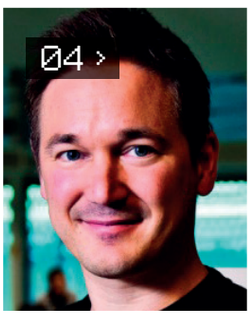

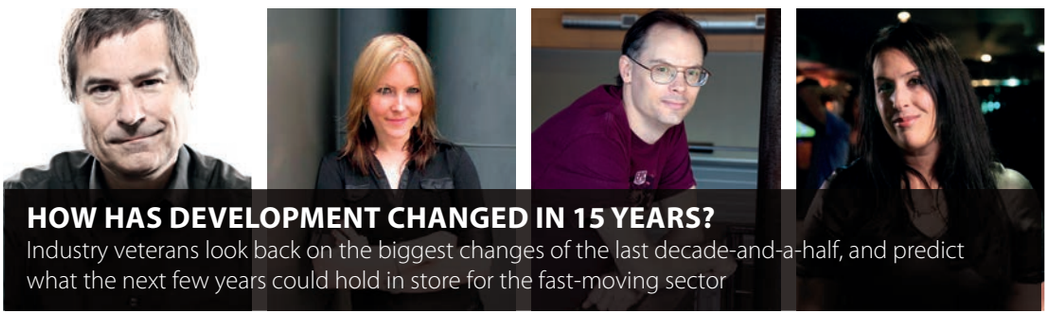

HOW HAS DEVELOPMENT CHANGED IN 15 YEARS?
Industry veterans look back on the biggest changes of the last decade-and-a-half, and predict what the next few years could hold in store for the fast-moving sector

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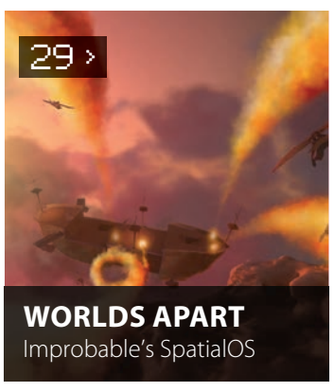

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EDITORIAL

HERE'S TO THE NEXT 15 YEARS

FIFTEEN YEARS AGO, the games industry was a different beast entirely. Games were primarily sold through retail, Microsoft didn't even have a console and the peak of mobile gaming was still Nokia's take on *Snake*.

To say that a lot has changed is perhaps the understatement of the decade (and a half).

The big question is: what's next?

Hopes are high for virtual reality, but the technology is still young. HoloLens and its ilk may drive augmented reality to new heights, but who knows what other technological advances it might inspire.

Meanwhile, smart devices have brought gaming to the masses in ways that no-one could have predicted – and many of the mainstream audience aren't truly aware of – but more investment in wearable technology could unlock new possibilities.

And the ongoing democratisation of development tools and leading engines means – as I keep banging on about to anyone who will listen – absolutely everybody can now be a games developer. There is no telling what game-changing designs or innovative mechanics might emerge unexpectedly from some far-flung corner of the world, capturing the imagination of devs and gamers alike.

I'll be honest: I hate the 'there's never been a better time' rhetoric people often like to throw into conversations, but it's hard to think of a period when games development offered this many opportunities to so many people.

Most importantly, regardless of where the industry goes in the future, you can bet that *Develop* will be there.

James Batchelor
jbatchelor@nbmedia.com

15 years of Develop, 15 years of development

As Develop celebrates 15 years of service to the games industry, visionaries from the games sector look back – and forward – to consider how much games have changed in the past decade-and-a-half

develop
DECEMBER 2000 • ISSUE 1
The international monthly for games programmers, artists, musicians and producers
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Brand New!
Nina Kristensen
GROW UP
Small studios will kill us, warns Ian Baverstock...
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THIS MONTH MARKS the 15th anniversary of *Develop* magazine. That decade-and-a-half has flown by and, while we launched before Microsoft had delivered a first-gen Xbox to the public, it all feels like yesterday.

But rather than blow *Develop*'s own chiptune trumpet, we're using our 15th anniversary to look back at how far games have moved forward since we published issue one.

We gathered industry luminaries, from veterans and indies to giants of the smartphone era, and asked them two simple questions. Firstly: What is the most important change in the games industry from the last 15 years? Then we asked for a rather more daring response: going out on a limb to predict what the next 15 years hold in store. ■

ILKKA PAANANEN
Founder and CEO, Supercell

Which change to games making in the past 15 years do you feel has been most important?
Obviously, for us, it has been the rise of smartphones, tablets and the app stores that go along with them.

Without those, and the explosion in mobile gaming they led to, we at Supercell wouldn't be making the games we make today.

That's true for a lot of other developers too – those platforms have made it easier than ever to launch a game globally and allowed so many studios to flourish and succeed. They've also opened gaming up to so many people who weren't traditional gamers – everyone has a gaming device in their pocket now.

As a proud Finn, the other big development that I am very happy about is the growth in the Finnish gaming scene over the past 15 years.

It was in 2001 that Remedy's *Max Payne* became the first truly global game developed in Finland and since then the trajectory has been phenomenal. Now we have over 250 active studios, directly employing over 2,500 people and generating almost €2 billion in annual revenue.

What do the next 15 years have in store for games makers?
It's really impossible to say with any certainty what the future will hold, especially when it comes to gaming.

For mobile games, it is still very early days. I am sure that, over the coming decades, we, as an industry, will invent many new types of gameplay.

The one area that I am particularly excited about is social gameplay and how that will evolve; we're still just scratching the surface on what will be possible given that the mobile platform is on an always-connected device that everyone carries everywhere.

As for us at Supercell, we're going to keep doing what we've always done – making games that our players want to keep playing for years. What those games will look like in 15 years' time is anyone's guess, but you can be sure we'll be there making them.

// MEANWHILE ON DEVELOP-ONLINE.NET

73 Game Funding Tips
deve1op.net/1QTuiAl

The Develop Post-Mortem: Lara Croft GO
bit.ly/1Idfyo2

Full Circle: What players want to know from devs
bit.ly/1l7iBZs

RHIANNA PRATCHETT
Freelance Scriptwriter and Narrative Designer

Which change to games making in the past 15 years do you feel has been most important?
The most important in terms of my job is the way in which the industry has become more narrative-focused.

When I entered the industry in 1998 as a freelance games reviewer, one of the questions doing the rounds was: 'Do games need professional writers?' It seemed a no brainer to me. After all, they have professional artists, programmers, designers and so on. Why would you want an aspect of your game not done by a professional in that field?

Over the last decade-and-a-half the industry has embraced the idea of adding professional writers to their teams and it's making a big difference.

We've also seen writers gaining hard power in game director and creative director roles, such as Neil Druckmann, Amy Hennig and Ken Levine, with outstanding results.

Likewise, episodic storytelling is starting to take hold and broaden out from being 'just a Telltale thing'. We're finding new ways to tell stories, from triple-A right down to indie, and it's really enlivening gaming for everyone.

What do the next 15 years have in store for games makers?
We're going to see episodic gaming become more commonplace. Telltale has definitely led the way, but other studios are going to be picking up the baton and running with it.

We're also going to be exploring new ways of storytelling with virtual reality – although I do wonder if the clunky headsets will ever catch on.

RAMI ISMAIL
Developer and Business Guy, Vlambeer

What do the next 15 years have in store for games makers?
I honestly, genuinely, absolutely have no idea what's happening in a year or two – let alone five, ten or 15.

I can tell you it'll be significant, and I'd wager it's going to be as big of a leap as it was from *Diablo II* to *Dragon Age: Inquisition*, or from *Super Mario Bros* to *Majora's Mask*. It's probably the same leap as we took from a small local games store through to XBLA, and Steam to the worldwide App Store.

We're talking technologies, paradigms and understandings of design that simply do not exist yet, even in a conceptual form.

In 2000, saying 'mobile gaming', 'F2P', 'DLC', 'Xbox', 'Xbox Live Arcade', 'PSN', 'motion controls', 'Wii', 'Kinect', '*World of Warcraft*', 'online store' or any of those things would've been preposterous or considered over-the-top speculation.

In 1985, just 15 years before that, Nintendo considered bringing the NES to the US and Bethesda got founded. I'm just saying.

I'd predict that gaming becomes even more ubiquitous as the generations that grew up with it around them fully become the norm.

eSports will be as common as normal sports, and play a huge role in further mainstream acceptance of gaming.

We'll be able to further immerse people into game worlds through augmented reality. I don't believe a lot of VR will survive until 2030.

I'm unsure if the device seperation across PC, mobile and console will endure. Consoles won't be dead. PC won't be dead. Mobile won't be dead.

Game development will hopefully continue to democratise from being practically impossible as a one-man show in 2000, to easy enough that your average person can sit down and make something simple but agreeable in a few hours of trying.

Developers will still be making pixel and chiptune games, and people on whatever storefront is the big deal in 2030 will complain about this through hypercomments.

SIOBHAN REDDY
Co-founder and Studio Director, Media Molecule

Which change to games making in the past 15 years do you feel has been most important?
The tools for both amateurs and professionals have got better, meaning that making games is much more of a hobbyist thing again, which means that there are a lot of interesting things out there to play. Never has there been so much breadth and choice.

What do the next 15 years have in store for games makers?
I think the number of makers will keep growing, especially as now young people are learning to code in schools and there is growing interest in the industry.

I can see games continuing to bleed more into pop culture, and imagine seeing young people using game technology to create really cool interactive experiences with their friends in the same way that kids jam together in their garage.

The lines between music, film, game and story will blur more than ever before. We don't know the half of immersion yet.

I also feel that not everyone that makes games in their spare time will release them professionally, but the skills they learn making and playing games will impact other industries in really positive ways.

TIM SWEENEY
CEO, Epic Games

Which change to games making in the past 15 years do you feel has been most important?
Gaming was a fairly small and close-knit activity back in 2000. Today, everyone is a gamer, and there are billions of us worldwide. We can thank the smartphone revolution and the availability of inexpensive PCs with great graphics hardware for this.

It's also easier than ever to be a game developer: anyone can download an engine and learn to build games by following video tutorials.

What do the next 15 years have in store for games makers?
Over the next decade, the way we play games will be revolutionised first by virtual reality and then by augmented reality.

Imagine in 10 years being able to wear a $300 device with the form factor of your Oakley sunglasses, with an 8K display for each eye

You will have a higher-quality and more immersive game experience than is available today at any price, and these devices will be accessible to billions of people worldwide.

It'll be a new world.

TOMMY PALM
CEO and Game Designer, Resolution Games

Which change to games making in the past 15 years do you feel has been most important?
For me, that was without a doubt the introduction of the App Store.

I had, at that time, been struggling for almost ten years with making mobile games.

The problem before the App Store was that it was impossible for a mobile games developer to reach out to consumers and get paid for your work.

Not long after, Android followed and created a healthy competitor with the Google Play store.

What do the next 15 years have in store for games makers?
The introduction of VR, and eventually AR, are areas that are comparable with the impact of the internet on human society.

Games are going to be one of the driving forces for the adoption of VR. It is in many ways similar to the early days of the mobile games industry: a blank sheet of paper ready to be defined.

Within 15 years, almost no-one will be unaffected by the changes that these two technologies will bring to our lives. When AR technology is ready for mainstream adoption in five-to-seven years, carrying around an extra screen in your pocket – the smartphone – will be redundant.

DAVID BRABEN
CEO and Founder, Frontier Developments

Which change to games making in the past 15 years do you feel has been most important?
It is amazing how many changes there have been since 2000, but probably the most significant for me is the move to online distribution. It has freed up and democratised the route to market.

Previously, games sold only if they got retail shelf space: a limited slot largely controlled by distribution channels and major publishers, so it was only the games the big publishers sold that could be successful, with quality a factor coming after that.

As we move more and more to digital distribution, quality and consumer word-of-mouth have become the dominant factors determining success, and that has moved the balance of power to quality developers. It has meant we now have a wider, more varied selection of much better games than we have ever had before.

What do the next 15 years have in store for games makers?
Probably the biggest change will be the stronger integration of games within the whole entertainment sector – such that the current boundaries will gradually disappear.

We already see different entertainment media being consumed on common devices. Our kids tend not to watch broadcast TV other than through a digital service like Netflix or YouTube – on tablets, smartphones and smart TVs as well as PCs and games consoles, all of which are basically now broad media devices.

People will watch some films in VR, as well as playing games. TV 'interactivity' will not just be pressing the red button, but will become more and more interactive.

Crucially, all the skills for developing this kind of convergence will come from what is now the games industry.

Games will broaden further to include only 'mildly interactive' entertainment, but this will be additive to what we have now – though some will see it as 'dumbing down' – and we will see more collaborations, buyouts and mergers across the whole entertainment business to create a new, very different entertainment landscape.

JO TWIST
CEO, UKIE

Which change to games making in the past 15 years do you feel has been most important?
The most significant change that we've seen has been down to our constant innovation in business models and technology.

As a digitally native sector, we have a special relationship with our consumers and we respond to what players want through always-on data. That has been key to making games that appeal year-on-year.

The mobile smartphone ecology and free, accessible games engines have also changed the market significantly, lowering the barriers to entry for game makers and making more space for innovation in experiences across platforms; the whole connected world is now your audience.

Now, we just need more people from different perspectives and backgrounds coming into the industry to continue this innovation.

What do the next 15 years have in store for games makers?
The generation of millions that is immersed every day in games like *Minecraft* is going to have a huge impact on how products and experiences are made.

This generation sees the world differently because of these games – anything is possible, the world is made and remade according to them. I can't wait to see how this profoundly influences them.

It's also clear that the implications for VR go beyond its role as an interactive entertainment product; when it cracks co-presence, its use for social inclusion, role in education, therapy, training and potential impact on the lives of people with disabilities will be significant.

Beyond that, the sensor-driven world is incredibly exciting, and brain-controlled games are already here.

We still have a long way to go to unlock a whole new audience and set of experiences that is yet untapped.

DEBBIE BESTWICK
MD, Team 17

Which change to games making in the past 15 years do you feel has been most important?
I'd argue that, for small teams, development isn't actually that different today than it was in the 16-bit Amiga era.

What helps now is the massive leap in quality of the middleware game engines available to help creators. One great game right now being built in Unity is Playtonic's *Yooka-Laylee*. I've never seen anything so visually striking running in Unity thus far, and that's made possible for the relatively small team thanks to the quality of the tools available.

The landscape of the industry has transformed almost beyond recognition, and that's partly down to the digital revolution across all mediums – not only in the way we buy, but distribute and play, too.

I'll also never forget sharing a version of one of our games on mobile internally in early 2000 and being laughed out of the room by a few people who were adamant mobile games would never work.

What do the next 15 years have in store for games makers?
Building a more assessable and interactive gaming environment for the mainstream is something we've been pursuing for years.

As online infrastructure improves, streaming and subscription channels will help greatly in expanding the audience though, once a large number of contenders emerge, it'll be interesting to see who ends up on top in this space, since I doubt the mass market will accept having to adopt several services at once.

The success of VR depends on how and if the medium cracks the mainstream audience.

MIKE BITHELL
Game Developer and Designer

Which change to games making in the past 15 years do you feel has been most important?
The adoption of online distribution is the single most important factor, from my perspective.

It opened the market up to people like me, and made achieving success without a game on a single store shelf was not only possible, but an avenue for many, many companies. We've been swept along on that wave, looking forward to seeing how the industry continues to innovate in that area.

What do the next 15 years have in store for games makers?
I don't predict the future too often, but the biggest challenge and opportunity coming up is going to be a sort of Netflix-style 'all you can eat' games platform.

Just like streaming TV, I suspect we'll see winners and losers in such a setup.

ELLA ROMANOS
Game Developer and Consultant

Which change to games making in the past 15 years do you feel has been most important?
The most important change has been the significantly reduced barriers to entry for players.

Digital, free to play business models, mobile, casual, streaming – all these things make it easier for people to play games and that trend underpins every other change we have seen.

What do the next 15 years have in store for games makers?
With budgets going up – as they always do – we will see growth of some studios, whereas we saw many mid-sized companies die or change over the last decade. We currently have a big rift between huge and small companies – that gap will start to close, with less at the tiny end and more in the middle.

There's going to have to be some kind of shake-up in discoverability because it isn't sustainable as it is – but I don't know what that will be.

'Games as a hobby' will become the dominant way of making games, so live services, eSports and all these things will continue grow – particularly expanding in the West.

We will continue to debate the ups and downs, good and bad, strengths and weaknesses, risks and awesomeness, and definition of 'indie' until we die or eventually get bored.

VR will create amazing stuff but it won't be a mass-market audience sitting in their living room with a headset on, playing games as we know them but with VR to make them more awesome.

DEVELOP DIARY

Your complete games development events calendar for the months ahead

AT A GLANCE

DECEMBER 1ST
Just Cause 3
Gaming's answer to Bond (pre-Craig) returns with his biggest title yet.

DECEMBER 4TH
Mario & Luigi: Paper Jam Bros
Worlds collide as Nintendo merges its RPG spin-offs for a colourful 3DS romp.

DECEMBER 17TH
Star Wars: The Force Awakens
Wouldn't it be great if Kylo Ren turns out to be Jar-Jar Binks?

DECEMBER 18TH
Christmas Jumper Day
Rebel against this annual fashion disaster by donning a subtly geeky top.

DECEMBER 25TH
Christmas Day
Sod the presents – this is the one day you can enjoy pigs in blankets guilt-free.

DECEMBER 31ST
New Year's Eve
No hoverboards or self-drying jackets. Here's hoping 2016 is less of a let-down.

DIARY DATES

GDC 2016
March 14th to 18th
San Francisco, USA
www.gdconf.com

DECEMBER

DEVGAMM MINSK
December 10th to 11th
Minsk, Russia
www.devgamm.com

ADVENTUREX
December 12th to 13th
London, UK
www.screen7.co.uk/adventurex

MOBILE MONETIZATION SUMMIT
December 15th
Tel Aviv, Israel
www.mmsummit.com

JANUARY

POCKET GAMER CONNECTS LONDON
January 18th to 19th
www.pgconnects.com/london

MOBILE GAMES FORUM LONDON
January 20th to 21st
London, UK
www.globalmgf.com/london

GLOBAL MOBILE APP SUMMIT & AWARDS
January 22nd
Bangkok, Thailand
bangkok2016.gmasa.org

CUNY GAMES FESTIVAL
January 22nd
New York, United States
http://bit.ly/1Nc6OQ6

GLOBAL GAME JAM
January 29th to 31st
Find your nearest event at
www.globalgamejam.org

EVENT SPOTLIGHT

MOBILE GAMES FORUM LONDON

MGF is the leading and longest-standing 'mobile-first' forum for games industry professionals who are shaping and revolutionising the landscape of mobile gaming. It continues to cover the trends and best practices within the business and strategy of the global mobile gaming space.

In addition to leading speakers and sessions, the event features networking opportunities such as VC Speed Dating. This fast and fun format allows you to get exclusive one-to-one time with the people who are investing in and publishing mobile, technology and gaming start-ups. Event registration and additional sign-up on the day is required.

MGF London takes place during London Mobile Games Week, a series of industry-wide events throughout London for professionals in the tech, creative and entertainment sectors, with a core focus on mobile games.

"VC Speed Dating allows you to get one-to-one time with investors of mobile, tech and gaming start-ups."

This year's speakers include execs from Wargaming, EA, Warner Bros, Tencent, Game Insight and more.

Develop is an official media partner for MGF and will be reporting on the biggest news from the conference.

Find out more at **www.globalmgf.com/london**. ■

COMING SOON

DEVELOP #168
FEBRUARY 2016

- 30 Under 30: Profiling the hottest new emerging talent in the games industry
- Develop's Salary Survey: How much are you worth?

DEVELOP #169
MARCH 2016

- GDC Issue: Prepare for the biggest event in the development calendar
- VR Special: Exploring the possibilities of virtual reality for developers and more

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Lighting Artist
Art Manager
Technical Artist

Production
Art Production Manager
Project Manager

Engineering
Rendering Engineer
Tools Engineer
UI Engineer
Generalist Engineer

Design
Cinematics Designer
Senior Game Designer
Game Designer
Design Assistant

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//COMMENT: BUSINESS

The ABCDs of India's mobile market

SuperData's **Joost van Dreunen** offers his advice on breaking into this key emerging market

Joost van Dreunen highlights free-to-play and social network-based games as among the most successful genres in India

AS GROWTH FOR mobile games begins to slow in the west, it is accelerating in the east.

With the money that is flowing into the region, the landscape for interactive entertainment has started to change, allowing game makers to consider markets that were previously unsustainable or inaccessible.

One market that has recently appeared on people's to-do lists is India.

Why? Well, for one, India's mobile games market has ample room for growth, as smartphones still make up less than half of mobile phone shipments in the country.

Most consumers in India currently still use a feature phone but, as prices drop and handset manufacturers seek to cater to large new markets, many are about to upgrade to smartphones.

As a result, India's 180.8 million mobile player base is on track to more than double by the end of 2018.

MOBILE MAJORITY

When looking at India in more detail (*see the table below*), it becomes immediately obvious that there is an absence of a large market for traditional game publishing.

Considering the size of the country, $29.5 million (£19.8m) in annual revenues for digitally distributed games on PC and $22.9 million (£15.3m) on console is tiny.

Categories that employ a free-to-play approach, like MMOs ($183m/£123m) and social network-based games ($140m/£94m), do considerably better in India.

But mobile gaming is transforming India into a market of interest for game makers.

With $416 million (£279m) in annual revenues, mobile gaming is India's largest games market. And the year-on-year increase of over 64 per cent makes India the fastest-growing mobile market in the region.

Early indicators suggest that India's mobile games market will triple in the next few years, reaching $1.2 billion (£0.8bn) by the end of 2018.

Not surprisingly, well-known game makers like *Cut the Rope* dev ZeptoLab are forging deals to start publishing in India. This leads us to the question: how to break into the Indian games market? The answer is to follow its ABCDs:

ASTROLOGY

Life in India quite literally takes place in alignment with the stars. Whether it comes to naming babies, making business decisions or the organisation of daily life, astrology plays an important part.

BOLLYWOOD

Producing roughly four times more movies per year than the US film industry, Bollywood is central to Indian culture. Its unique blend of music and drama, often with a focus on family values, reminds us of the need to make games that are culturally relevant.

> ***The year-on-year increase of over 64 per cent makes India the fastest-growing mobile market in the region.***

CRICKET

Sports are popular everywhere, but it is difficult to find a zeal that matches India's love for cricket. The size of the Indian market has made cricket's television rights invaluable, and its presence will be pervasive among mobile gaming titles.

DEVOTION

The practice of worship is very prominent in India. Across its media landscape, devotion has traditionally played a prominent role in literature and dance.

Combined, these four categories provide a powerful content mix with a strong appeal to India mobile gamer audiences.

But don't let the marvelous growth rates sucker you into believing that it will be an easy ride. Rather, as the entire mobile games market descends onto India, having a competitive edge based on providing better-localised content will prove key.

Now that gaming is mainstream and global, that also means the industry will have to make content relevant to different audiences. That means starting with your ABCDs.

BREAKDOWN OF THE DIGITAL GAMES MARKET IN INDIA (MILLIONS USD, 2015E)

SEGMENT	INDIA (REVENUE)	YEAR-OVER-YEAR CHANGE (%)	UNITED KINGDOM (REVENUE)
MOBILE	$415.8m	+64.0	$870.7m
FREE-TO-PLAY MMOS	$183.2m	+20.4	$299.0m
SOCIAL	$139.5m	-1.4	$405.5m
DIGITAL CONSOLE	$22.9m	+23.9	$254.9m
PC DLC	$29.5m	+18.5	$432.1m
PAY-TO-PLAY MMOS	$63.0m	-12.3	$100.3m

//COMMENT: CHARITY

The power of streaming

Playmob's **Lee Hinds** examines how popular online streamers can harness their audience for good

OVER THE LAST couple of years, I've been watching a certain phenomena sprout from within the gaming industry with equal parts intrigue and jealousy.

The jealousy part is simply defined as the '90s gamer in me feeling like he was born 20 years too early, but the intrigue is something that has yet to peak and still continues to internally enquire: "What next?"

The phenomenon I speak of is video game streaming – something that is becoming more and more synonymous with modern-day gaming.

To add some context, a recent study estimated that the two biggest video game content streaming platforms, YouTube Gaming and Twitch, together average 550 million unique visitors a month – experiencing separate totals of 330 million and 220 million, respectively. These figures come following the platforms' compound annual growth rate between 2012 to 2015 of 96 per cent and 134 per cent, respectively.

In fact, the same study showed that, on YouTube Gaming alone in 2015, the top 15 video game streamers had 165 million subscribers between them. That's an unbelievable audience for these young adults to tap into.

So you can clearly see that video game streaming is only on the up.

WITH GREAT POWER

Whether it was Churchill, Roosevelt or the pensive narrator in the 1962 edition of *Amazing Fantasy* – Spider-Man's intro to the world – that coined the term "with great power comes great responsibility", they clearly had video game streamers at the back of their mind. So how are these streaming superstars handling the responsibility?

Well, the biggest streamer out there currently is one Felix Kjelberg, aka PewDiePie, who has a massive 40 million subscribers. To date, Felix, with the help of his followers, has helped raise over $1 million for various charities including WWF, St Jude, Save the Children and Charity: Water.

But Felix isn't the only streamer utilising their power for good; Adam Dahlberg, aka Skydoesminecraft, has 11 million subscribers and has helped raise money for Children's Miracle Network.

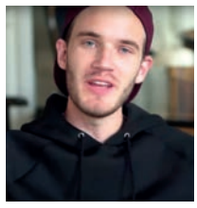
In fact, such is the response from the gaming community that specific charitable streaming events are being created and run year-on-year with the goal of attracting streamers to promote and donate to the causes.

#GamingTuesday – created by Save the Children, a charity that works across the globe to educate and protect children in need – is one of these events. Extra Life is another, and I'm sure that more will spring up in the coming years.

A popular streamer and ambassador for #GamingTuesday, Athene, recently said: "Given the right platform, the right purpose and the right opportunity, gamers can be a life force for good".

This statement sums up the new phenomenon perfectly. Streamers now have a platform and the opportunity, so why not find a purpose that matters and be a force for good? ■

Lee Hinds works for Playmob, an organisation dedicated to helping connect games developers with charities and other causes.
www.playmob.com



Above: Streamer Felix 'PewDiePie' Kjelberg has helped to raise more than $1 million for charity

Main: Minecraft streamer Adam Dahlberg supports Children's Miracle Network

//EXTRA CONTENT ONLINE

"We need to develop strong maths and physics skills for our industry. But what are we actually doing about it?"

Let's support the education of developers... through games
bit.ly/1LdCVxE

"Keep income-generating activities distinct from loss-making activities so that any loss can easily be quantified and used."

Video games tax relief: 8 ways to maximise your deduction
deve1op.net/1Ry2Oxr

"Making versioning a strength for our organisation and making it the nerve centre of our business has really paid off."

How Continuous Delivery keeps the EVE universe online
bit.ly/1NQvgHs

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DEVELOPMENT FEATURES, INTERVIEWS, ESSAYS & MORE

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The UK's best-kept secret reveals its plans to step into the limelight
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QUEBEC CITY RISING:
We take a trip to the Canadian development hub and explore its close-knit community
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THE NEW FACE OF TESTRONIC:
CEO Brett Morris on his love of staff and the changing face of QA
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New Year, New Job: How to level up your career in 2016

Developers and recruitment experts reveal how to secure that elusive perfect job

WHAT IS THE next step? It's something every developer has to ask themselves from time to time.

If you're long in the tooth and in need of new challenges, are you better to change roles or switch studios entirely? If you're still finding your feet, are you doing everything you can to improve your chances of winning that promotion?

In addition to the return of our *Develop Jobs Extra* – a who's who of studios that are currently hiring, included with every copy of this issue – we've put together this five-page recruitment special, seeking expert advice on how developers can take their career to the next level in 2016.

Over the next few pages you'll find advice on how best to position yourself for promotion over your peers, or how to find the new role you're looking at within other companies.

If you're already in the process of readying your application, we also have advice on how to polish that all-important CV, as well as your online portfolio.

Read on, and good hunting. ■

The dreaded interview is just one step along the way to a new job – and our experts' advice will help you ace it

If your circumstances change, make sure you stay aware of which jobs are suitable for you, says CV Bay's Katie Edwards (above)

Making the most of your new job search

CV Bay's **Katie Edwards** discusses how to improve your chances of finding that ideal position

THE NEW YEAR brings the start of the job hunting season for many people.

If you're thinking of looking for your next challenge in the gaming industry and have spent your nights re-writing your CV, what should you do next?

We asked Katie Edwards, gaming team leader at CV Bay, for some advice on how to maximise your chances of landing that dream role.

"It's a good idea to team up with a specialist that deals with roles in the gaming industry every day," she says. "They will be able to advise you on the marketplace and your CV, and guide you through the entire interview process.

"Be upfront about your requirements," she continues. "Tell your recruiter honestly about why you are leaving and what you really want to do.

"Also remember that as your search progresses your requirements are likely to change. You may not have considered relocation before but might now, so be sure to communicate any change in circumstances with your recruiter. They may not have told you about your dream job because it's further away than you could originally commute."

> ***"I cannot express strongly enough how important it is to do your research."***
>
> Katie Edwards, CV Bay

What other advice did Katie have?

"Getting to know your prospective employer's business, values and company ethos is paramount," she states. "I cannot express strongly enough how important it is to do your research on the company and its values."

Simon Miles, ex-head of recruitment at Codemasters, adds: "A specialist recruiter will understand their clients' requirements and save companies time by sending suitably experienced candidates.

"The candidates I have interviewed will have done their homework before attending, and that allows us to get more out of the time we have together."

Miles goes on to highlight the importance of finding the right support.

"The hiring process normally takes around two months – from when you actively start looking for a new role to when you will actually start your new job. It's important to get off on the right foot and build a relationship with your recruiter. You need to trust that they are doing everything they can to help you." ■

How to get promoted

Craig Pearn, talent acquisition manager at Ubisoft's Reflections studio, offers advice on standing out from your peers

If you feel stuck in a career rut, talk to your manager and find out the next step to take, says Reflections' Craig Pearn

How developers can improve their chances of promotion and career progression?
I was always told that the day you start a new job, you should already be planning your next step forward. For the majority of people, getting a promotion is a big deal and seen as a reward for hard work and high performance.

At Reflections, everyone has the same opportunity to progress and your evolution is clearly mapped out. Unlike many companies, there is no glass ceiling. You do not have to wait for someone to leave, retire or advance before an opening comes up here. There is a leadership and an expertise path in place that is linked not to tenure, but to the proficiency level reached in your current position. With every evolution, you gain a new level of responsibility.

My advice for improving your chances of promotion is to take control of your own destiny, take responsibility and talk to your boss about what it would take for you to get promoted.

Having clear objectives in place is important and the benchmark of what is expected of you. You should be engaging in meaningful discussions with your manager about where you currently are with your work, showcasing your skills, explaining your career goals with the company and finding out what options are available for advancement.

You will definitely be recognised if you're having an impact outside the scope of your normal job and taking on extra responsibility. This will benefit your professional image and increase your network in the workplace.

How can you stand out from other devs?
Keep your skills and knowledge up to date. I'd recommend talking with people around you to find out how they continue to develop their skills or finding out what kind of training is available to you.

Reflections has made a huge investment into training and development, and also holds annual performance reviews to assess employees' current performance, accomplishments, potential for future improvement and areas for development.

Achievement of your objectives is key, but why not get involved in extra-curricular activities, too, to get yourself noticed? If this isn't an option for you then create your own side projects – or offer to help others with theirs. Be involved in game jams – and always offer ideas and suggestions. Perhaps you could mentor more junior developers or attend industry events and learn about next-generation technology. Volunteer wherever you can.

What can damage your chances?
If you're wondering why you're being overlooked for promotion or you feel there is no advancement, then you need to talk with your manager.

If you are sitting in silence or you're the person hoping that someone will notice you, then you could be there for a while. You may genuinely lack the skills necessary to do the job, so you will need to be proactive and take more of an initiative to find out.

There may be other factors involved that are damaging your chances, such as not being a team player or sitting back doing the bare minimum. You might not respond well to feedback and have decided not listen to constructive comments. In the end, it's your manager that will promote you – so take on board everything they have to say.

One thing that will definitely damage your chances is having a bad attitude around your peers and lack of engagement with your job – and don't bad-mouth your company.

It's not just about what you do, but how you do it. People who succeed are passionate about what they do, have never-ending enthusiasm and channel their energies into being the best that they can be. ■

Being concise and making sure you include all the relevant information in your CV are two key factors for success, according to Creative Assembly's Emma Smith (top) and Sophie Malik (bottom)

Honing your CV: The CA way

Total War developer Creative Assembly offers advice on how to impress future employees with that all-important CV – and the key mistakes you should avoid if you want to set yourself apart

AT CREATIVE ASSEMBLY, we have a constant inflow of CVs all day, every day.

However, when we see a fantastic CV highlighting a truly talented developer, it really stands out from the rest.

Our hiring managers always take the first look at the applications we receive.

We keep it that way because they have the best possible handle on exactly the kind of person they want to see, but are also able to keep a watchful eye out for CVs with exceptional potential. They are always keen to find a superstar developer in the making.

So with that in mind, we have a few hints and tips direct from the team at CA.

CLARITY COUNTS

Jonathan Court, senior producer on our console team, suggests a CV that is concise and easy to read is by far the best way to be noticed.

"Get to the point and show your most recent experience first," he says.

"Call out key skills up-front so we can easily get you shortlisted."

Tim Regel, development director for the *Total War* team, finds that those who include a concise cover letter can help him to find the right candidate.

> ***"Applicants with demonstrable, specific interests and a suitable attitude for working at our company will really set themselves apart from others."***
>
> Tim Regel, Creative Assembly

"Applicants that have demonstrable, specific interests and present a suitable attitude for working at our company will really set themselves apart from others," he recommends. "Show us what you have achieved, not just what you've worked on."

A common mistake is in missing out or not sufficiently highlighting relevant experience that relates to the job description.

Making it clear that you suit the role reflecting the job description is crucial to being considered for the next stage.

Sophie Malik, one CA's HR business partners, recently spent time giving advice to art graduates.

Sophie suggests that you "put your portfolio link front and centre".

"A well-constructed CV and/or portfolio site with a strong personal statement can speak much louder than a minimalist CV and a long cover letter," she states.

A QUESTION OF CHARACTER

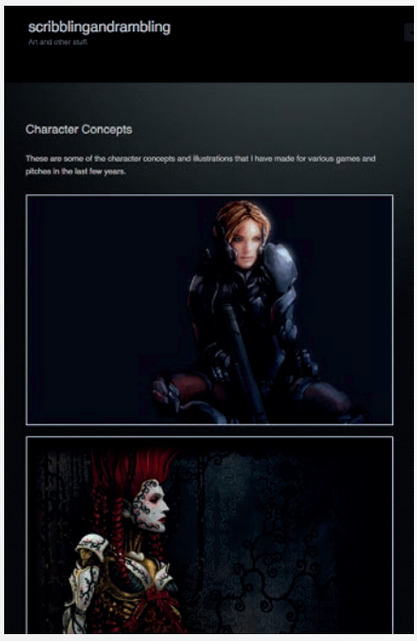
We would also suggest graduates look to support their CV with extra achievements and activities, such as blog writing or getting involved in game jams.

Not only does this help improve game development skills and personal networking, but it also gives a great impression of the character and dedication that the candidate could bring to our studio. ■

Eight ways to improve your online profile

Payload art director Jason Howard offers his advice on polishing your portfolio, creating a suitable online gallery, what your best work should be, and how to showcase it and make it stand out online

Payload's Jason Howard (above) says finding the perfect job is a lifelong pursuit – so your online profile should be constantly improving


scribblingandrambling
Art and other stuff
Character Concepts
These are some of the character concepts and illustrations that I have made for various games and pitches in the last few years.

Modelling
These are some examples of my modeling, I haven't really done all that much modeling in the last few years, all prototyping and bug fixing really but I do get a chance to do some from time to time, and keep myself as up to date with current gen techniques as best I can.

1. YOUR PORTFOLIO

The key to creating a good portfolio is having the right content to put into it. In that respect, artists are luckier that other disciplines.

If you are right for the role, it will shine through from your portfolio far clearer than C# experience will from a designer's CV. If you are not right for the role, your portfolio will save a lot of wasted time for everyone involved.

2. PERSONAL WORK

The trick is to have good work – and you can't produce that in a couple of weeks when you decide to apply for a job.

Creating your portfolio is a lifelong task and does require some effort. All the good artists I have met and hired spend their free time working on personal projects.

If you're a frustrated junior lamp-post artist on a racing game but have dreams of working on epic fantasy RPGs then personal work will allow you to show that in your portfolio.

Don't just see it as creative indulgence, though: raise your quality bar.

Take a look at the Polycount 'What are you working on?' forums, watch some tutorials, investigate current workflows and aim to compete with the best artists in the industry. In a year's time you'll have some real meat for your portfolio and a lot more experience and technical insight.

3. ONLINE

I've had many discussions about how portfolios are presented online. Lots of artists have a website but, unless you are looking for freelance work, a simple blog or a Behance page are adequate for an online portfolio.

The important thing is to keep it clear and concise. The aim here is to let a potential employer see your work as easily as possible. Assume anyone looking at your portfolio probably has little time and little bandwidth; a six-second transition from a thumbnail to the image is probably going to get annoying and having to use plugins – no matter how quickly they install – might not happen.

Never forget that you are applying for an artist's role, not a job as a web developer. The closer the page feels to Windows Explorer, the more likely the viewer is to look at all your work.

4. EDITING CONTENT

Once you have put your portfolio together, you need to edit the content. You will probably have put too much work in there and there will be a variable quality level. Quality trumps quantity here.

Talk to your friends. Ask them, for example: "If you had to take half the images out, which ones would you remove?" If you do that with a few people you should start to get a good idea of what work isn't so good. Act on it; it may be painful, but a bad piece of work can really drag the whole portfolio down.

5. NDAs

Don't put anything that's under NDA online – that's unprofessional. If you are not sure, ask your line manager. Also ask if you can take work to show in person at an interview in lieu of having it in your portfolio – if so, make sure a potential employer is aware that you have more current work to show at your interview.

6. CONSISTENCY & RANGE

Try to show a range of genres in your portfolio. A few years ago, I was interviewing for a graduate intern. After trawling through endless concrete buildings with photo reference textures, I saw a portfolio that had the usual concrete buildings but also featured a fairy wood with hand-painted textures, so – unsurprisingly – that was the artist that got the internship.

One good piece of work is better than three mediocre ones, and two different pieces of work are better than three similar ones.

7. TECHNICAL ABILITY

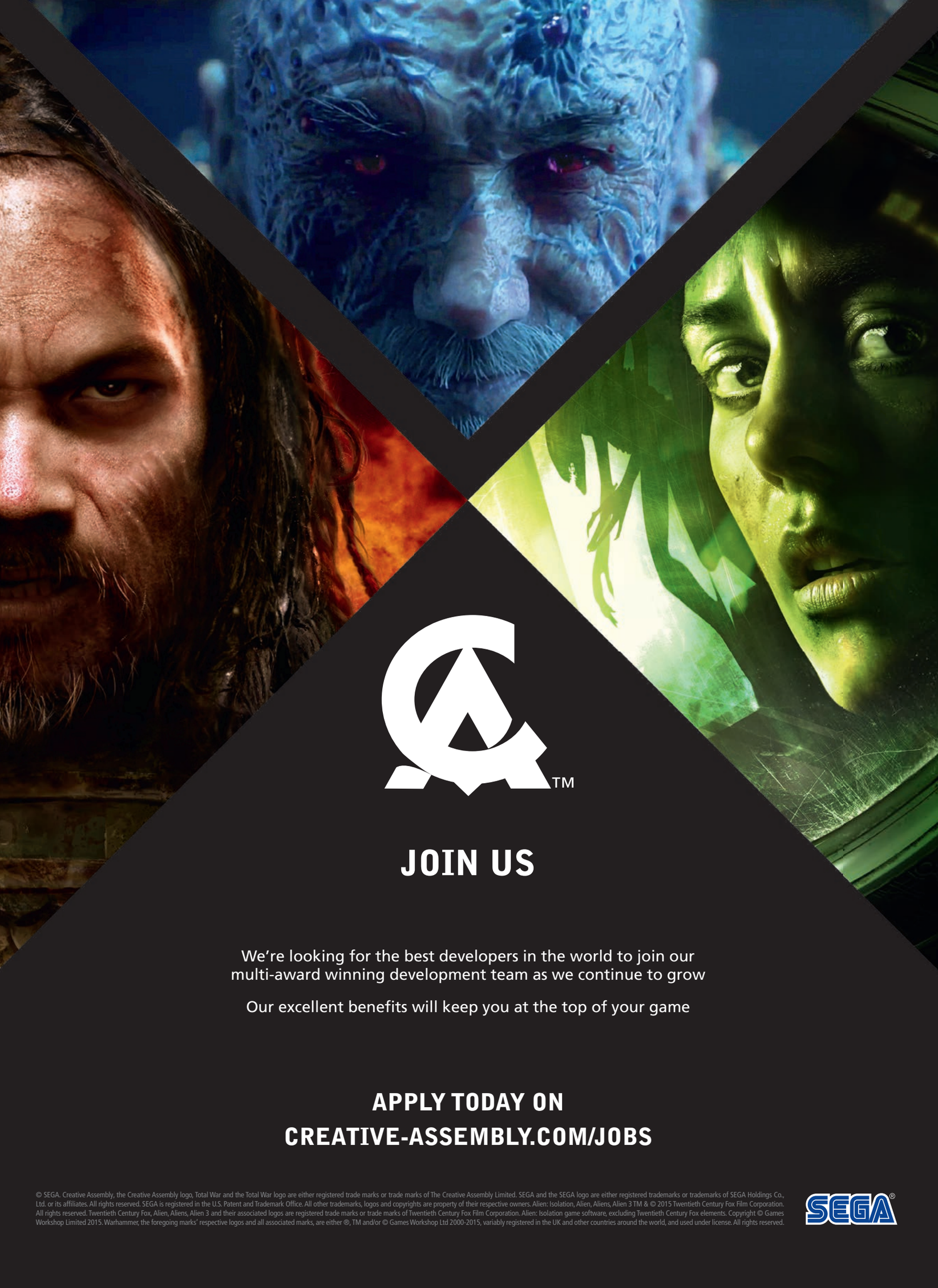
If you have 3D work, show it in-engine. A high-end render is no better than an un-lit asset as far as games development is concerned. Put your work into Unity or Unreal, get the shaders working, get the lighting working, put some VFX onto it. The level of confidence this will bring to a potential employer is massive.

Investigate current practice and then explain your pipeline. If you are going from Max to Z Brush to X Normal back to Max and then to Photoshop and finally to Substance Painter then point that out – it will speak a lot about your understanding of how art is made.

8. PERSISTENCE

Don't give up. Finding the perfect job is not a task that can be completed in a couple of weeks or months – it is a career-long endeavour.

Be patient and take your time. Grab whatever professional experience you can, keep up with the industry, find out how other people make game art, practice your skills, grow your portfolio and work hard – you will get there. ■



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Who is Sumo Digital?

The Sheffield-based developer has produced triple-A titles in some world-renowned franchises, but still feels like it is "the UK's best-kept secret". We find out more about the studio's rise from 'port-plusses' to its new blockbuster titles

FOUNDED IN 2003, Sumo Digital started out like many developers: a small band of people passionate about games, operating on a work-for-hire basis and taking whatever projects they could find.

Twelve years later, it has grown exponentially, is working on some of the world's most beloved games IP and is on the verge of opening a third studio. Yet, the firm faces something of an identity crisis.

"Most people are familiar with our work, as in the games themselves, but they may not realise that Sumo created them," explains co-founder and director Darren Mills. "When we talk to people about *Outrun 2*, our *Sonic Racing* and *Tennis* titles, and *LittleBigPlanet 3*, the reply that usually comes back is: 'Oh, they were awesome games – I didn't realise that was you'.

"In the past we've been comfortable with that, but this last year we've begun to turn it around. There's a community out there that knows us and is interested in what we do, so we're working hard to engage with them and, in turn, promote both Sumo and the titles we'll be releasing in the future."

The team has come a long way since those early work-for-hire days, but one constant is the trust placed in them when it comes to triple-A franchises.

Mills says: "A lot of our early work was taking existing franchises and game worlds and adding a twist. As we grew, the games got bigger and moved from 'port-plusses' – as we used to call them in-house – to new, totally original titles.

"We've always worked with strong IP. Our current work on huge brands like *Crackdown* and *Disney Infinity* attests to the trust that IP holders of massive franchises are willing to put in Sumo."

GOING IT ALONE

Sumo was previously owned by US firm Foundation 9 Entertainment but last year completed a management buyout to become fully independent. This, Mills says, was the first tough chapter in the new era of Sumo Digital.

> ***"Most people are familiar with our games, but they may not realise that Sumo created them."***
>
> Darren Mills, Sumo Digital

"Extracting ourselves from a US-centric organisation was no small task," he says. "That, along with getting on track with new strategic objectives like a second UK studio, starting an engineering team in our India location, a long overdue update of the Sumo brand and a couple of other exciting internal initiatives, has been a huge undertaking.

"We're 12 months into our new 'life' and it's been a demanding, hectic but exhilarating year."

And 2016 is set to be just as busy, with the long-awaited opening of that second UK studio.

Having established a branch in India back in 2007, Sumo is finally ready to open the doors to its third outfit – and its keen for the new team to complement the original.

"Our new UK location will work alongside the Sheffield studio in much the same way our Indian one does," says Mills.

"However, the new studio will also give us the opportunity to expand our expertise and competencies into several new areas without distracting us from our core business.

"We want our culture to pour over into the new studio as it has done in India. We carry many of the same internal traditions there as we do in Sheffield, Sumo has to be a fun place to work, and we work hard to make it that way."

Mills describes the staff as "the most important part of Sumo", highlighting them as the reason for its success and observing that new hires often stay longer than they might at other studios. In fact, most of the original people that guided Sumo through its first six months are still part of the team.

"And we've been expanding ever since," adds Mills.

"It's been a constant for us pretty much since 2003. We'll continue to grow to match opportunities and build on our core skills and competencies.

"We have to attract the best staff, but being the best-kept secret in the UK games scene is not going to help with that, so we're working hard to get the message out there about the studio and the work we do." ■

www.sumo-digital.com

Sumo Digital's Darren Mills (above) believes the studio's culture encourages new staff to stay longer than at other studios

Quebec City rising

For a long time, Quebec has inspired jealous rivals around the world for its generous tax breaks. But how are those incentives actually being put to use in Quebec City? **Develop** investigates the small but tightly-knit community

Quebec City is home to more than 1,200 games industry employees across just 22 companies

VISIONS OF QUEBEC City may summon images of its densely-populated neighbour, Montreal.

But while the Quebec province's capital covers a much wider stretch of land, its population is less than a third of the size, at 537,859 as of 2014. But despite this, the city's tech sector is booming.

The local games industry employs more than 1,200 staff across just 22 companies. Currently, annual revenues are near $100m (£67m), but this should rise significantly in the next year following the release of Ubisoft Quebec's blockbuster title *Assassin's Creed Syndicate*.

The region also has specialised educational programmes in six institutions, including Laval University, Bart and O'Sullivan Colleges, Cégeps Sainte-Foy, Garneau and Limoilou.

Perhaps what's surprising for newcomers to the area is just how tightly-knit the local games industry is. Walk around any corner in the Saint-Roch neighbourhood and you'll likely be on the same street as a company that works in games. It's common for studios to share stories and best practices with each other, and some employees are also able to find a new job just across the road from their old workplace.

"Part of the reason why I enjoy working so much in Quebec City – because that's where I'm from – is the mood of the city," says Beenox creative director Thomas Wilson. "Quebec City is one of the nicest cities I've been to. The people are super nice and very friendly, and it's a beautiful city as well – it's not too big. If you like big cities, you can always go to Montreal. But even when I worked for six years in Montreal, that's still something I was kind of missing: the human touch of a city like Quebec City."

CLOSE TIES

Quebec City's most prominent studios include Ubisoft Quebec, which houses just under 400 staff, *Call of Duty: Black Ops III* Xbox 360 and PS3 studio Beenox, and *Chariot* developer Frima, which has 350 employees.

> ***"There's potential for a lot of collaboration with other studios in Quebec City."***
>
> Edgar De Smet, Larian Studios

Ubisoft Quebec was founded in 2005, and the initial goal for the publisher was to invest $75m (£50m) in the office over ten years. Come 2015, Ubisoft has already pumped some $241m (£161m) into the studio and doubled its original target of 200 employees.

Ubisoft MD Nicolas Rioux says the studio is the biggest development house in Quebec City. That's not just down to Ubisoft's investment, but the support of local organisations and the provincial government backing regional growth.

"*AC Syndicate* is a concrete result of this investment over the last ten years," says Rioux. "And not just Ubisoft's investment; investment from the government of Quebec also had a big role in this growth and the results we have here right now."

Ubisoft has formed close ties with companies in the area, many of which are just right around the corner in the Saint-Roch neighbourhood. The majority of studios really are within a ten- to 15-minute walk at most.

When recruiting, Ubisoft had one new staff member experience a special 48-hour house-warming that saw him jump out of a plane and appear on-stage at a local concert, thanks to a partnership it set up with the organisers. It's also worked with local companies like animation outfit Squeeze Studio on the *Assassin's Creed IV: Freedom Cry* trailer, which came up with the concept of, and filmed, the entire trailer.

The potential for collaboration is what attracted Belgium-based *Divinity: Original Sin* developer Larian Studios to recently expand its operations to Quebec City. Currently housing 13 staff, the studio plans to recruit as many as 40 employees during the next three years.

"There's not that many studios in Belgium, but here there's potential for a lot of collaboration," says Larian Quebec studio director Edgar De Smet. "Not necessarily only for video game studios, but also animation studios, sound studios and so on."

Firms from Assassin's Creed Syndicate developer Ubisoft Quebec to Divinity: Original Sin creator Larian Studios have expanded to Quebec City

Though tax breaks were clearly a major reason for its move – incentives that De Smet says will become a big part of the company's business plan – it was also due to the wider support offered for new studios in the area.

START-UP SUPPORT

De Smet says economic development agency Quebec International helped prepare "nearly everything" for their arrival, from providing temporary work space to finding a location and setting it up. It also took advantage of a special grant to help kit out its new office.

"We started at Le Camp, which is a location typically for start-up companies," he says. "This really helped because we were with other start-ups and other small companies, with which we could share our questions and issues. They helped us connect to the neighbourhood and all the studios here."

Le Camp is a technology incubator and accelerator that helps game studios and other companies grow. So far it has supported Larian and other start-ups such as Peak Media, Budgeto and Laserax. It offers a working space for start-ups, as well as connecting them with other local businesses and investors, helping them with their big pitch to attract funding.

As well as helping start-ups, it also aims to make Quebec City a more attractive proposition for external investment and foreign businesses.

"We have a soft-landing offer here," says executive director Isabelle Genest. "Before companies from abroad get in their real office, we offer them a place here. They're part of the community and we have access to their network, so it's a win-win situation."

Publishers and studios interested in setting up shop in the city need to be aware of cultural differences. The province is a French-speaking nation and, while most inhabitants can also speak English, it's something to certainly keep in mind for potential movers.

CULTURAL EXCHANGE

Wilson says Beenox offers French-speaking classes to new employees, and believes it's key to settling in in the area. He says that not learning the local language can prove difficult for both new staff and their families.

There are also some differences in the way business is conducted, as De Smet explains.

> ***"There's not a lot of activities happening with the Quebec City scene outside of the studios."***
>
> Guillaume Boucher-Vidal, Nine Dots Studio

"As soon as our employees started working for us, they wanted swag," he recalls. "They wanted T-shirts with our logo on it. Because here it's very important for people where they're working, and they want to show off. They identify with their job. That's not so present in Belgium."

THE INDIE CHALLENGE

While Quebec City is well-known for its large studios, it's surprising that it hasn't spawned a hotbed of indie activity. Jean Simon Otis of Chainsawesome, which is developing multiplayer Steam Early Access title *Knight Squad* and last year won $50,000 from local competition Catapulte, says the community is small – especially when contrasted with a close neighbour.

"It's pretty cool because everybody knows everybody – but I feel like it's a bit harder than in Montreal, because there's a lot of indie studios over there," he says.

"I feel we could gain from having more studios here so we could share more."

In an effort to help generate a more vibrant scene, Nine Dots Studio CEO Guillaume Boucher-Vidal, whose studio recently received a $1m (£0.67m) grant from the Canada Media Fund for open-world RPG *Outward*, planned a meet-up for games makers in October, and aims to do more in the future.

He was motivated into organising his own event by the lack of other get-togethers for developers in the city.

"We just want to mingle because, in terms of activities, there's not a lot happening with the scene outside of the studios," he says. "Since no-one is doing anything I just thought: 'I'm going to do it myself'. It's kind of that mentality that indies have, or else they wouldn't be indies."

Quebec City's industry may only have a handful of studios, but many of its companies are well-known on the world stage.

While the indie scene still needs time to grow and more done to nurture it, with a close community of developers, those generous tax breaks and a host of support plans in place for new studios, whether local or foreign, Quebec City's games industry is one to watch. ■

The new face of Testronic

As he settles into his new role as CEO, we discover what Brett Morris has planned for the QA and localisation firm's future

New Testronic CEO Brett Morris says QA is becoming more about preventing bugs than identifying them at a late stage

What can you bring to Testronic as CEO?
We're very fortunate to be in a vibrant and dynamic sector that blends creative energy, technological innovation and business, making it one of the most fascinating industries to be involved in.

What I bring is huge enthusiasm for the industry and a determination to empower my colleagues to allow them to support the huge effort that goes into producing excellent content.

This focus results in an improvement in the quality of the product that our clients deliver to the market and to be part of this is a very exciting place to be.

What have you learned during your time at [Testronic parent company] Catalis Group, and how will this help you shape the future of the firm?
The most important thing that I've learned is about the people and their dedication to delivering excellent customer service. In my experience a company is only as strong as its people and it's a great honour to be able to work with the calibre of people that we have at Testronic.

What have you learned from your time outside the games industry and how will you apply this to Testronic?
Every business has to balance short-term goals with long-term objectives, and this is particularly important in a market that is in a state of change – a situation that we currently face in the media and entertainment industry with the rapid growth of online digital content distribution models.

There's always a tendency to focus all of your time on the immediate, short-term goals that a business has, but you have to take time to think about how the business landscape is evolving over the longer term and dedicate a good portion of your time to preparing the business for the inevitable changes that will take place in the industry.

What are the biggest challenges faced by the firm? How are you overcoming them?
To continuously provide our clients with an improving value added service.

Price pressure is the other challenge – whilst our clients all recognise the quality of the service we provide, there is always a balance between maintaining that quality and ensuring we offer a reasonably-priced service.

In our case, our Warsaw office is a great asset, as it allows us to operate an efficient cost base whilst also benefitting from a European work ethic and attitude.

How can a company like Testronic stay competitive in the increasingly crowded QA and localisation market?
I actively encourage our teams to always be thinking about how we can improve our services – starting with the most basic steps, all the way through to the more complex aspects of quality assurance.

We also ensure that we continuously speak to our clients on every level, making sure that each comment and observation is treated as high priority. If a client has taken the time to make a point about our service, we owe it to them to review their points.

How is QA and localisation changing?
Quality assurance is becoming much more focused on the prevention of bugs rather than on their late-stage identification. Now, more than ever given the investments involved, our clients need to minimise release delays and manage projects to budget.

Developers are keenly aware of this, of course, but sometimes in the heat of crunch there is a desire to simply get the game out.

Our challenge is to strike a balance between hitting their targets whilst also preventing any potential bugs.

What does the future of Testronic look like?
Testronic is on a very positive trajectory at the moment with a very strong team and good growth metrics. Whilst there is always opportunity to improve service levels, I don't intend to make sweeping changes.

As for long-term, we are well positioned to continue to see the level of growth that we've experienced over the past three years. Achieving this requires us to invest in training and developing our people – something that I am very committed to.

It's great that developers and publishers now recognise that QA is not a tedious necessity but an important part of the post-production process to lift a game from 'good' to 'excellent' – our aim is to provide a service that facilitates a game making that leap to excellent a reality. ■

World domination

Games publisher Bigpoint shares its advice on running online titles across multiple countries around the globe

NO MOBILE OR browser title with online multiplayer can rely on a developer's home market for success. Instead, they need to have global appeal and retain users from around the world.

This introduces the additional obstacle of ensuring the game runs smoothly and functions correctly in every target market, guaranteeing that all players enjoy the same experience.

Bigpoint is highly experienced in this regard, as shown by the success of *Seafight*. This isometric MMO puts players in charge of a pirate fleet as they battle for dominance over the world's oceans.

Despite being 10 years old, *Seafight* continues to attract new players, establishing it as a central pillar of Bigpoint's portfolio, alongside the likes of *DarkOrbit*, *Farmerama* and *Drakensang Online*.

With so many players, Bigpoint has had to ensure the single title is catering to multiple audiences.

The firm's communications manager Mathäus Glinkowski says: "Because *Seafight* has so many different communities from around the world, we are constantly working on adding country- and cultural-specific aspects to the game in order to not only have our communities being reflected in the game, but also to bring the communities together, as we are offering accessibility to country-specific content also for players from other regions."

CULTURAL CONSIDERATION

Of course, making the game accessible to players around the world brings with it a number of challenges.

"First of all, cultural differences have to be taken into account," says Glinkowski. "As an example, celebrating a national holiday from one country might be seen as offensive in another country. To circumvent this problem, we have international community managers that we consult on topics, as well as specialised analysts who gather country-specific data."

These cultural differences apply to multiple topics, not just national holidays. Glinkowski stresses that it is vital to do thorough research on the different regions your game serves before working on new content.

"A good example is the use of violent or rough topics in quests or character development," he says. "Topics like this can be seen as offensive or sometimes can also be forbidden by law. Of course, this sometimes can make it difficult for us, as in a pirate setting, topics like theft and robbery usually create a realistic flair.

"There are, of course, other issues that we have to take into account. The time difference between the data centers is just one issue to mention, as it demands a specialised management strategy."

As Glinkowski mentions, Bigpoint's community managers are instrumental in making sure every region gets the support it needs. Hiring these managers can be another tricky task.

"It highly depends on the position we are intending to fill," he says. "For a position in development, we are mainly looking for excellence in coding quality, creativity and self-management skills.

"There are, however, situations where we might be looking for designers, artists or community managers who are supposed to add the content needed for a game to appeal to a specific region.

"The Asian market is a good example for this, as we see an extreme cultural difference when it comes to the perception of games in general. In this case, we would be looking for a deep understanding of the specific market." ■

Bigpoint's Seafight is adjusted from country to country to maximise its appeal to each region

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Your monthly guide to the best career opportunities in games development worldwide

MOVERS AND SHAKERS

Develop takes on a new senior staff writer

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PRODUCER OF THE MONTH

The Witcher 3 producer John Mamais reveals the challenges of scale

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RECRUITER HOT SEAT

COO Richard Smithies on the start-up spirit of Radiant Worlds

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The other developer skills gap

Organisations like UKIE have helped to boost the number of clued-in employees joining the industry, but there's another area that developers need to educate themselves in

by Alex Calvin

WHEN MOST PEOPLE talk about the skills gap in the UK games development scene, they're talking about a lack of developers with the necessary knowledge within the industry.

Thankfully, that skills gap is being addressed by a number of development and design courses across the country. But there is another area in which games developers remain largely hopelessly ignorant: business.

"Traditionally, if you are a developer you wouldn't have too much knowledge of the business side of things," Pollen VC's marketing communications manager Tamsin Henry says.

"This is where there is the skills gap. A lot of people are having to learn this from scratch. Getting your head around all the digital marketing terminology is quite a stretch. Obviously a lot of people are now picking this stuff up. That's the key reason – it's essential if you are going to be an independent developer to have these skills. And if you are working for a larger corporation, you'll probably be expected to know how all these things fit together – how marketing fits into the overall scheme of the games market."

She continues: "There are a lot of steps that developers can take to do these things, even if it's at quite a small level. People have the idea that PR and marketing is a black box – that it's large scale and all about putting out press releases and big campaigns – when actually there's a lot that indie developers can be doing, even from a long time before launch, to build their community.

> ***"There are lots of steps that developers can take, even if it's at a small level."***
>
> Tamsin Henry, Pollen VC

"A lot of people just think it's scary, but there's a lot you can pick up by experimenting with doing stuff on Twitter and asking people what they'd like to see in your game. You're doing marketing there."

It's not just PR and marketing that developers need to be up to speed on. There's a wide array of areas that they either need to learn for themselves or, at the very least, seek outside help with.

"Most developers need an understanding of legal documentation and getting help with that," Henry explains.

"Think about getting help from legal or financial professionals, but also be quite careful about that. Devs need to do their research and go to organisations like UKIE or the press to see what they should be judging those professionals on.

"At the end of the day, you need some financial software, some accountancy – you need to be able to judge that the person you have brought on to do that is the right person to work with.

"If you actually find you need a lawyer for some reason – say, to help you with patents – do the research around that to ensure you get the advice when you seek professional help. Getting a basic understanding of what your contract with a publisher means and how that limits you in terms of your IP, what you can do with it afterwards and how much of your revenue they are going to take ownership of – that's something that indie developers also need to be aware of." ■

MOVERS AND SHAKERS

This month: Develop, Testronic, The Foundry and Animatrik

DEVELOP ■ MATTHEW JARVIS is *Develop*'s new senior staff writer.

Jarvis was formerly a writer for *Develop*'s sister publication *MCV* for a year-and-a-half and, before that, worked on the PC and technology trade magazine *PCR* for one year.

Previously, he was a writer and games critic for the *InQuire Live* newspaper in Canterbury, for which he was awarded in two categories at the 2013 KiC Media Awards.

He has also contributed freelance features on games to several publications, including design analysis of *Metal Gear Solid 2* and *Demon's Souls*.

Jarvis replaces former *Develop* deputy editor Craig Chapple, who departed the publication in November.

"Matt's knowledge of the games industry and experience working on *MCV* make him a great addition to the team, as does his keen interest in games development," said *Develop* editor James Batchelor. "I'm looking forward to working with him."

You can contact Jarvis on 01992 535 646 or at **mjarvis@nbmedia.com**.

TESTRONIC ■ The QA and localisation specialist has taken on industry veterans **MARC KENT** and **EDD BUFFERY** to oversee its operations.

Buffery will lead the company's London facility, while Kent will head up the new Warsaw operation in Poland. Both will report to director of operations Chris Bewick.

"I've worked with both Marc and Edd in video games QA for many years," said Bewick.

"They are both highly regarded and have proven track records in the sector where they have been instrumental in driving best practices and innovating QA methodologies. We're excited to add them to the Testronic operations team."

Kent added: "I'm thrilled to be joining the Testronic team. Testronic's reputation and client list in the QA industry is enviable, and Poland has proven a fertile ground for delivering first-rate QA services at a highly competitive price."

THE FOUNDRY ■ Former Shine Group CEO **ALEX MAHON** has joined design and visual effects software firm The Foundry as chief executive.

Mahon joined Shine Group back in 2006, building the *MasterChef*, *Spooks* and *Broadchurch* production company into a business with revenues of £700 million before its sale last December. Before that, she held senior positions at Talkback Thames, FremantleMedia Group and RTL Group.

"Having spent the last 20 years working in both technology and creative industries, I'm thrilled to be joining The Foundry because of the opportunity for dynamic change and rapid growth," Mahon said.

Former Foundry CEO Bill Collis, who remains full-time as president and board member, said: "Alex has the skills to continue the extraordinary growth The Foundry has achieved over the last decade. I'm personally looking forward to focusing on identifying new initiatives and technology partnerships to maintain the company's entrepreneurial spirit."

ANIMATRIK ■ Industry veteran **MATAIO GARDI** has brought his 13 years of experience to performance capture and virtual production solutions provider Animatrik Film Design as executive producer.

Gardi counts among his credits titles including *Assassin's Creed Unity*, *Splinter Cell: Blacklist* and *Gears of War 4*, and has previously worked at publishers such as EA, Microsoft and Ubisoft. Combined, his games have sold more than 60 million units.

He will help Animatrik in its continued offering of performance capture services across North America and elsewhere.

"We couldn't be more pleased with Mataio Gardi joining the Animatrik executive team," said CEO Brett Ineson.

"As a service company, everything we do is motivated by a desire to help our clients achieve success, and Mataio's deep experience in video game production and the interactive space will be a great asset for our partners."

PRODUCER OF THE MONTH

In the first entry of our new regular section, we speak to John Mamais, senior executive producer at CD Projekt Red, to find out more about his role

THE WITCHER 3 notched up an incredible 6m sales in just six weeks following its launch earlier this year. Who better to name as our first Producer of the Month than the game's senior executive producer John Mamais?

Mamais has worked on the *Witcher* franchise since its first incarnation as an Atari release back in 2007, switching to developer CD Projekt Red five years ago.

Given the huge critical and commercial success of its latest installment, it's hardly surprising that it's this project he's most proud of in his career to date.

"It was totally a team effort," he says. "But I would like to take some of the credit for helping to build and manage such a stellar team. We grew the team from around 80 to more than 200 staff and created the studio's first open-world RPG – a major technological and content challenge, considering we were actually developing the engine in parallel to the creative development on the project.

> ***"We grew the team from around 80 to more than 200 staff."***

"We also self-published so we had to handle both sides of the business – developing a cross-platform game, working closely with Sony and Microsoft, and then partnering with multiple distributors to release seven different language SKUs across three retail platforms."

With any game – but particularly one as complex as *The Witcher 3* – QA is a critical element in the development process.

With 45,000 lines of speech in seven different spoken languages and eight additional subtitle languages, localisation was a sizeable challenge, too.

"In terms of production, when we hit a real playable alpha we needed to quickly scale up QA," explains Mamais.

"It's just not possible to have a large enough internal QA team – at least if you're a mid-size studio like CD Projekt Red – to handle this rapid scaling. This is why it's important to have a reliable go-to external QA team – one already deeply familiar with our IP and way of working.

"The biggest challenge on *The Witcher 3* with localisation was the constantly changing dialogue, and requirement to get it translated, recorded, and added into the game in time for things like lip sync and so on. Finally, you need to wrap everything up on time to ship the game in multiple languages.

"We outsource a great deal of play-testing and compliance plus localisation QA," he adds. "We have strong linguists as PMs who manage multiple languages using external translation and recording vendors.

"*The Witcher 3* was initially written in Polish and translated internally to English by two very strong Polish-English bilinguals. English was then used as the source and reference for all other languages."

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RECRUITER HOT SEAT

Radiant Worlds COO **Richard Smithies** on landing a role at the studio and why the right kind of confidence counts

What differentiates your studio from other developers?
Radiant Worlds has the perfect mix of the spirit of a start-up but with an experienced head on its shoulders.

Between us, the studio's three founders have about 100 years of game development and business experience, and many of our staff are also highly experienced industry veterans, but the company has only existed for less than three years and is tackling the very latest emergent game design ideas on a single project that we're really committed to.

That hunger to do something new but to apply time-worn, battle-tested techniques is a great combination and makes working at Radiant Worlds a great opportunity.

How many staff are you looking to take on?
We're looking to fill a variety of roles right now, but particularly focusing on experienced programmers, specialist designers and a big data engineer.

We're looking to keep the studio lean and agile, but we're not afraid to do what it takes to get just the right people in the right roles.

What perks are available to working at your studio?
We pride ourselves in a providing a well-rounded benefits package that really supports staff to maintain a good work-life balance.

Everything from pension plans, share options and private medical insurance to gym memberships, a beer fridge and flexible working hours make this a supportive, but rewarding, place to work.

We also pay overtime, which many studios don't.

What should aspiring devs do with their CV to get an interview?
Above all, make it clear and concise – we get a lot of applications all the time, so make sure we can easily see your experience and what you've got to offer.

Also, give us an idea of the type of role you're after and why you want to work on *SkySaga* – we're a studio working on one huge game so we want to hear about why your passions would be a good fit with ours.

What advice would you give for a successful interview at your studio?
Show us what you're passionate about and how that aligns with who we are. We need you to be able to demonstrate many of the skills you claim to have in your CV, but personality and 'fit' with our culture is every bit as important so be yourself.

We are not afraid to hire people who are unusual or different (in fact we welcome them), As long as they can operate as a team player and have lots to contribute.

Who is the best interviewee you have had and how did they impress you?
The best interviewees are always those who prepare well. It's not hard to do thorough research on your potential employer, so make sure you've looked into what they're working on, the culture of their studio and what history and experience they have.

I'm always impressed when people ask insightful, well-considered questions at interview, instead of the standard "What are the working hours?" or "How much do you pay?"-type questions.

And who was the worst?
The best way to put me off is to be cocky or too self-assured. Confidence in your skills, and an ability to communicate that clearly, are a must, but I know I'm not looking at a team player if you try to claim that you were the only reason a particular project was successful in the past, or that you must be better than everyone we already have on board.

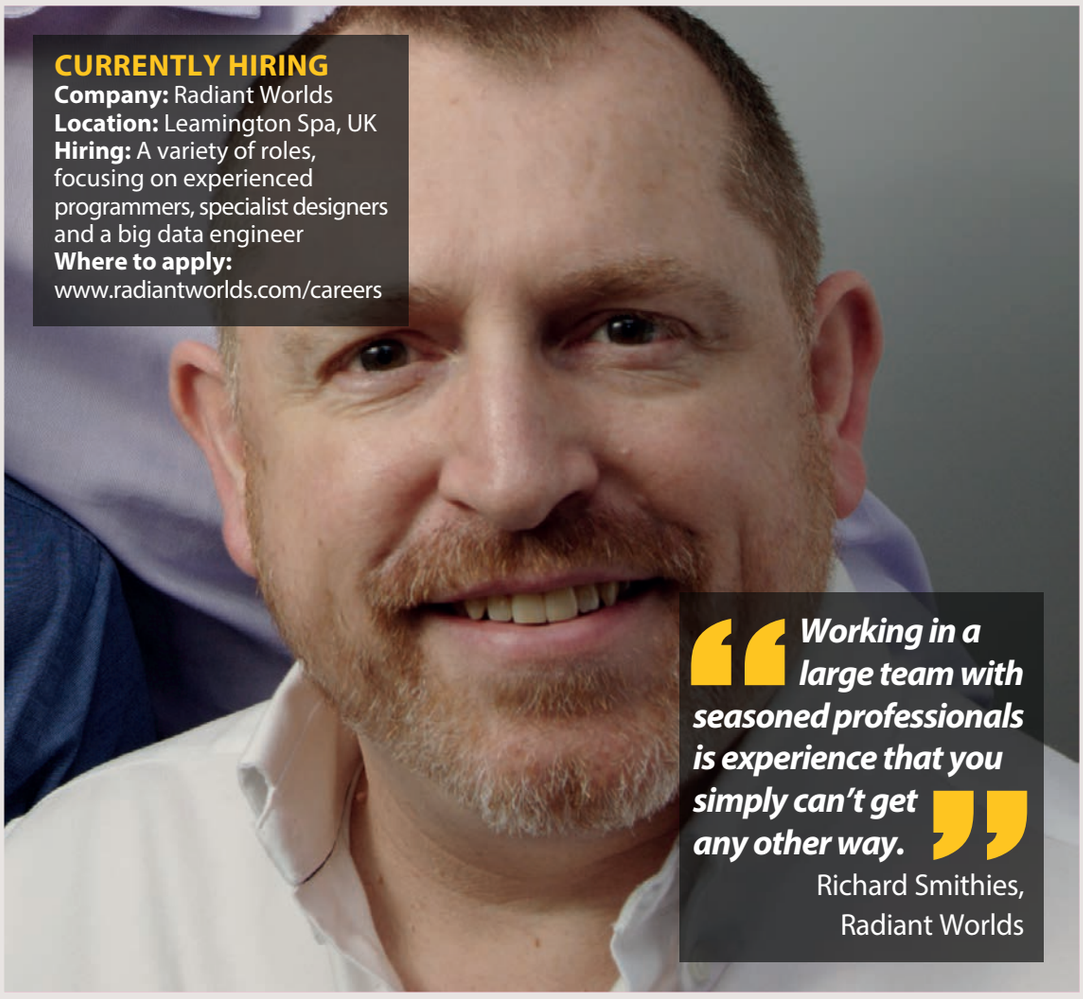
If you have recruited internationally, what is the process like?
Recruiting from outside the EU is a complicated process, but we have a lot of experience of going through it over the years so we're not phased by it.

We're keen to make *SkySaga* a global brand, so we're looking to work with people from around the world who have skills that are hard to find in the EU to help fill skill gaps or give us a 'local' perspective in all territories.

How have your recruitment needs changed at your studio?
The shift from a multi-project, work-for-hire setup in our previous studio, to a dedicated project in a new space with a new business model, has meant that we now look much more for specialists than generalists than we have in the past.

We've evolved our processes a little, but still place a high priority on finding good people who are passionate about their field and will become passionate about the success of *SkySaga*.

Why should developers join you when self-publishing has become so much more accessible?
The 'indie dream' is great for some people, but there's experience that you can gain from working in a large team with seasoned professionals that you simply can't get any other way.



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>
> Richard Smithies, Radiant Worlds

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GET THAT JOB

Development specialists offer advice on how you can bag that career leap

THIS MONTH: TECHNICAL LEAD WITH DECK13'S THORSTEN LANGE

What is your job role?
I oversee the development of our in-house multi-platform technology, 'Fledge'.

Since we work on multiple titles at the same time, it's my responsibility to keep the engine development on track while satisfying the technical requirements of all the projects.

What qualifications and/or experience do you need?
You should have a strong background in maths/computer science. Strong C++ skills are a must, since the bulk of the programming is done using that language.

Being a leader, you should be able to keep your fellow techies happy and motivated. This also means to empower them to take over responsibility for certain tasks – without leaving them alone when there are problems – and taking them seriously when it comes to time assessment.

With all the additional tasks put on your table, you should not forget that you wanted to be a programmer, first and foremost. Having said that, keeping the management overhead minimal is always a priority for me. Developing a keen eye for recruiting people fitting our team culture is therefore something I have to do as well.

If you were interviewing someone, what do you look for?
Firstly, the application itself should just make sense. So, whatever the applicant writes about themself in the cover letter should be reflected in their CV and vice versa. It may sound silly, but you would be surprised.

> ***"Being a leader, you should be able to keep your fellow techies happy and motivated."***
> Thorsten Lange, Deck13

After a written technical test and a personal interview, the applicant is invited to come over to our office to join the team for two days working on a specific task using our own tech. This on-site test is invaluable, because we will get to know each other better and see whether our work ethics match.

The most important thing is attitude. We are a happy few, and we spend a lot of time together, so we can't afford having someone with a bad attitude around, no matter how exceptional their technical skills.

What opportunities are there for career progression?
Quite a few. Working on their own tech, people are really able to dig deep into a specific field, becoming exceptional specialists. Technology evolves fast; there is always something new and exciting to spend time on.

Learning to lead and working well together with other departments is another opportunity that smaller projects create, since these will typically involve only one or two dedicated programmers who will then be in charge.

If you've got job advice to share, email **Matthew Jarvis** at **mjarvis@nbmedia.com**

SKILLS AND TRAINING

This month: Brunel University

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BRUNEL UNIVERSITY offers a number of courses that prepare graduates for working within the games industry.

The institute offers batchelor degrees in games design, games design and creative writing, and games design and film and television studios, as well as an MA in games design.

These courses focus on the theories and practices underpinning good gameplay.

"Our degree programme looks at game design through four key perspectives: design, theory, art and technology," lecturer Ashley Brown tells *Develop*.

"As a whole, the course offers compulsory and optional modules in each of these four topics, which provides students with a well-rounded education in the design of games."

Students have access to a dedicated Games Lab which is open 24 hours a day, seven days a week. Here they are able to use the likes of Unity, Unreal, CryEngine and Clickteam Fusion engines, plus Autodesk, Adobe Creative Suite and Microsoft Office.

"The lab features top-end gaming PCs with dual-monitor setups, drawing tablets, a range of consoles and an arcade machine," Brown explains.

Brunel University's degree programme approaches game design from the key perspectives of design, theory, art and technology

> ***"Working on games is all our students do."***
> Ashley Brown, Brunel University

"We additionally offer a console room with a variety of old school and new school gaming systems, and a board game room with stacks of games for students to learn from and play."

For both single and joint-honours BA degrees, students have the opportunity to do internships at its affiliated Octopus 8 Studios, while the university features a line-up of 'high-profile professionals' from around the industry.

They are taught not just coding, but also a variety of game design aspects.

"Working on games is all our students do," Brown says. "In addition to designing levels and mechanics, students will also take modules which approach games from technological, artistic and theoretical aspects, but always contextualised within the view of learning to be better designers."

BUILD

THE LATEST TOOLS NEWS, TECH UPDATES & TUTORIALS

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The tools firm details the new Marmalade Platform
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UNITY FOCUS
Peeling away Bloober Team's Layers of Fear
P36

Worlds apart: The promise of SpatialOS

London-based start-up Improbable has finally unveiled the technology it claims will build bigger game worlds than ever before. **James Batchelor** reports

"OASIS MANAGED TO overcome limitations that had plagued previous simulated realities," *Ready Player One* author Ernest Kline writes about the novel's Matrix-like technology.

"In addition to restricting the overall size of their virtual environments, earlier MMOs had been forced to limit their populations, usually to a few thousand users per server. But the OASIS could draw additional processing power from every computer connected to it. At launch, the OASIS could handle up to 5m users, with no chance of a system crash."

"That is literally what we've built," Improbable CEO Herman Narula tells *Develop*. "Even the way Kline describes it is very similar."

Narula is talking about the firm's SpatialOS, a new operating system that operates across "hundreds or many thousands of machines" – the idea being that developers can build a game or application that scales across all of those devices, unlocking new possibilities for world-building.

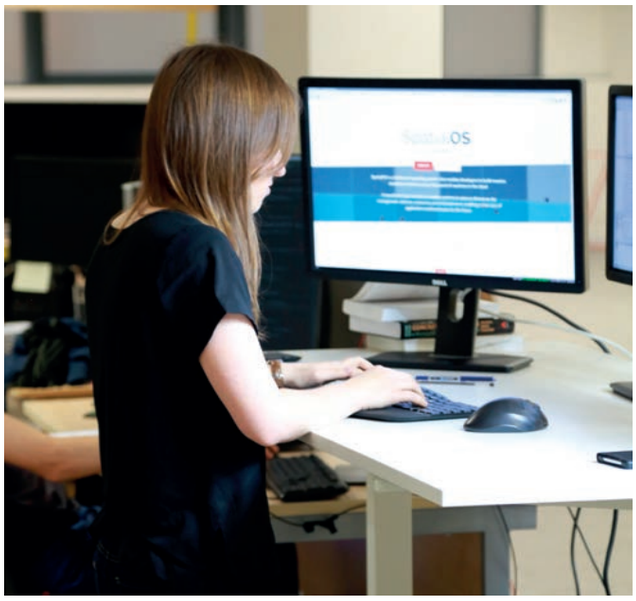
The tech can already be seen working in Bossa's upcoming title *Worlds Adrift*, a project said to have a game world that is "the size of Israel". Players explore floating islands in the sky as they harvest resources to build and improve their ship and explore the vast reaches of the game's environment, all while battling other players and in-game enemies.

"SpatialOS basically multiplies what a developer can do," says Narula. "It acts like a smart infrastructure which manages these quite complex running applications.

"It exists to try and scale things like massive simulations, which previously no-one could do. We want to open that up as a way for people to model things like cities or economies. They could even use it to look at processes within a company or, as we like to do, power really interesting game worlds.

"Anything you can see, you can go to. There are no loading screens. There is

Improbable CEO Herman Narula says SpatialOS marks the beginning of 'a new age of gaming'



SpatialOS enables devs to build games with persistence, where every player action has a permanent effect on the virtual environment

absolutely nothing about this that is in any way tricking players or faked. It's true simulation – or as we call it, smart simulation."

LIFE, BUT NOT AS WE KNOW IT

It's not just the size of the world that takes a leap forward, but also the life that inhabits it.

Narula says that, in addition to player-controlled characters, *Worlds Adrift* contains "millions of creatures that have real lifecycles".

"They eat, they move around the world," he explains. "They don't have fixed NavMeshes, they actually decide where they want to go. That's made possible by the fact that it's powered by this technology that's splitting up all that work in a particularly clever way."

In fact, entities and other elements of the world will continue to interact even when players aren't nearby – or even online.

Another crucial feature of SpatialOS is history and persistence. If you cut down a tree in *Worlds Adrift*, it stays cut down – although Narula has more ambitious examples.

"You can take a photograph in the game world and put it into a photo frame in the hull of your ship," he says. "If that ship collapses, raining debris everywhere, that picture frame will remain there in the dirt until someone finds it.

"When you come across a campfire, signs of a battle or a corpse, it tells you something has happened here. That level of interaction is worth more than the sum of its parts; it starts to create worlds with actual meaning in them.

"Developers have always been about selling people a fantasy, and that's wonderful. But we want to go that one step further; we want to give people real worlds – and, by 'real', I mean that their experiences within those worlds can feel meaningful."

> ***"Anything you can see, you can go to. There are no loading screens. Nothing is faked."***
>
> Herman Narula, Improbable

Improbable is keen to establish that SpatialOS is not just another middleware product. It's an operating system designed to serve as the foundation of your game, and this requires a different way of thinking when building titles.

"You don't plug SpatialOS into an existing game that you develop in a normal way," says Narula. "When you build a game on SpatialOS, you're building a game in a totally new way – your engine and other components plug into SpatialOS, so it really is an operating system.

"That fundamentally changes how you create games to make all of this possible. You can just use it in a slight way."

ACCESSIBLE TO ALL

Crucially, the firm is working hard to ensure established games tech can be used with SpatialOS. Unity is already fully integrated, and the team is working on adding support for other engines and middleware, including physics and graphics simulators.

A key point is that SpatialOS is not just for building PC titles – it's cross-device. In fact, games built on SpatialOS can be cross-platform as well.

"The way that developers build onto SpatialOS means that any device can be a portal into their world," Narula explains.

"You can run a game engine locally so you don't have latency issues when players move around, and that hooks into the SpatialOS simulation. So you can take a VR headset, mobile device or PC and plug them into the same world.

"Each player can have a slightly different experience. Mobile users might play a top-down game while PC players have an FPS – but it's the same world. And building that is really easy and straightforward."

SpatialOS is also built with more than MMOs in mind; it is intended to power any connected experience. As long as the end device has internet access, it can be used with a SpatialOS world in some way. For Narula, the possibilities for other genres are endless.

"How about FPS battles on a massive scale that are happening as part of a bigger war that's unfolding?" he says. "How about RTS games where you're waging war over a really big space?

"It can make single-player worlds feel more alive. How many times have you walked through a city in an RPG filled with the same clone NPCs, not really doing much? What if they were moving around, interacting in ways that mean your actions actually matter?"

DAWN OF A NEW AGE

With the technology now publicly unveiled and demonstrated in *Worlds Adrift*, Improbable is keen to get more people using SpatialOS. If devs are keen to use the OS to power their game worlds, they can sign up at Improbable's website and access to the tech will be rolled out over time.

"They won't even need to deal with Improbable, and eventually they'll be able to just use it like a remote tool such as Amazon Web Services," says Narula. "That means we'll see loads of independents building things – we're already starting to see that now.

> ***"This isn't about an incremental step forward. It's a whole new age of what's possible in games."***
>
> Herman Narula, Improbable

"We're quietly putting more people into our very early alpha program right now. Over the course of the next year it should become more public. We're quietly opening this up to people but holding their hands a little at the moment. Gradually, we should reach a position where we feel more comfortable."

Improbable is also keen to work with companies that might want to integrate their service, middleware or tool into SpatialOS.

Narula adds: "If a game engine is integrated with us, anyone using SpatialOS could use that technology as part of their game really easily. The game engine is no longer the central part of building an experience when you use SpatialOS."

The launch of *Worlds Adrift* will be a key milestone for both Improbable and its technology, showing the industry the possibilities afforded by SpatialOS for the first time. Narula hopes this title and others built on the new operating system will inspire developers to create new types of experiences in virtual environments that are larger and more alive than ever.

"Without SpatialOS, you'd be unable to build worlds with millions of interacting entities in the same place or the same level or persistence or history," he says. "You wouldn't be able to create massive places for people to explore, or serve millions of users across different devices in the same world.

"This isn't about an incremental step forward. This is a whole new age of what's possible, and it needs developers to be brave, to embrace it. You can't just build the same type of games again – you've got to create something new to take advantage of this." ■

www.improbable.io

Worlds Adrift (pictured) is the first milestone for Improbable's SpatialOS. It reportedly has a game world "the size of Israel"

HEARD ABOUT

Skywalker's sound

John Broomhall talks to Star Wars Battlefront audio director Ben Minto about recreating the films' iconic audio

DICE utilised 10 hours of original Star Wars SFX and stems from all six movies to create the audio for Battlefront

IT'S IMPOSSIBLE TO overstate what an incredible career opportunity being audio director on *Star Wars Battlefront* represents.

But having veto on literally everything that comes out of the speakers for a new interactive chapter in arguably the planet's best-beloved franchise is also an awesome responsibility. Oh, and did we mention the PC version is the first Dolby Atmos-enabled game?

"With all new projects, I'm always a bit daunted about what lies ahead", says DICE audio director Ben Minto. "But this is a very healthy reaction and a great internal measure to gauge how hard you're willing to push yourself; how much does this mean to you?

"With something so iconic as *Star Wars*, we knew we needed the original John Williams score, as well as access to the original sound effects and constituent source material.

"Our contacts at Lucas and Disney were amazing; EA quickly cleared the music rights and we were delivered 10 hours of *Star Wars* SFX. Going through it was a dream. Being able to hear the original recordings, complete with slates, was a humbling and unique experience that highlighted just how fortunate we were to work with such sacred material."

MEET THE MASTERS

The team even attended an 'audio summit' at Skywalker Ranch, meeting with the masters behind *Star Wars*' sound design: Ben Burtt and Matt Wood. Together, they discussed how to respect and honour the duo's legacy, whilst extending it to cover all DICE's needs.

"They were really impressed with how we work in the Frostbite engine," Minto recalls. "Subsequently, they provided access to stems from the first six films: music, sfx, dialogue, aliens and so on. We also sent detailed requests for SFX 'pulls' – where we knew it might be hard to isolate them or where we needed many variants. This provided many new and perfect source elements.

"We also undertook a set of foley sessions with Dennie Thorpe and Jana Vance, to help get us the right source for the movement and surfaces sounds; we then made our own unique sounds combining these recordings, new recordings – for example, Icelandic lava fields for the Sullust levels – and material from our own huge DICE library.

"The audio benchmark, which was easy to set, was of course the original trilogy; if it 'sounded like the films' – no mean feat – then we had achieved our goal. A simple extension to this was to embrace the *Star Wars* source material, legacy, methods and be true to its origins. That is: don't create new, build on what exists.

"Next, we had to extend from these starting points to make all sounds sit together in the world, as part of the same family. This was some critical learning from working on *Battlefield* for eight years. Finally, we enhanced the aural experience by utilising as much from the *Star Wars* universe as possible to really flesh out and enrich the soundscape beyond the visually verifiable and fill the game with plenty of audio 'nods'."

PAINTING BY NUMBERS

In films, a single sound might be reused many times and involve one perspective – for example, most blaster shots are 'third-person' and fairly close – but DICE needed to extend from that to cover 'first-person', various distances and also model how the blasters sound in different environments.

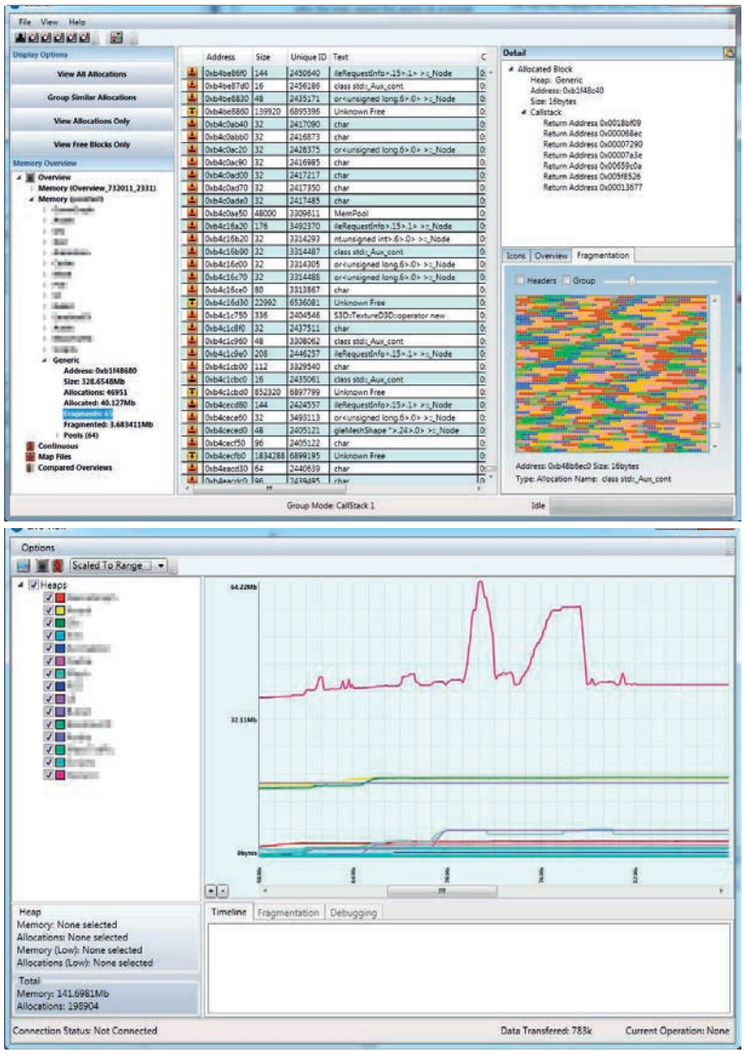
This entailed deploying old studio technologies, including vintage analogue synths – some favourites of Minto's. Parts of the project he describes as "like painting by numbers", given that they were working with a very specific, defined audio scenario, but huge swathes of the canvas were blank. The team's goal was to make everything – old and new – stick together as one coherent soundscape that made sense and was believably '*Star Wars*'.

"It was an incredible title to work on and, for me, the only way to approach this immense project was the humble Swedish/DICE modus operandi," says Minto. "I was constantly thankful for working with such a great team, on such an awesome project and with all the support you could ask for, to help us do our very best." ■

John Broomhall is a game audio specialist creating and directing music, sound and dialogue. **www.johnbroomhall.co.uk**

TOOLS SPOTLIGHT

This month: **Elephant Memory Manager**



Elephant Memory Manager includes a companion tool to monitor memory leaks and fragmentation causes

JURY RIG SOFTWARE'S Elephant Memory Manager is a C/C++ replacement allocator for any piece of software.

The tool supports all platforms; the firm's MD Darren Vine says the tech can easily fit any future or obscure platforms, and fully supports any customers implementing these as part of its services.

He states that the tool was designed with multi-core processors and high performance in mind, though it also comes equipped with a host of debugging features able to tackle errors often difficult to locate with traditional allocators.

Elephant features two types of allocator: the typical intrusive allocator and non-intrusive allocator for systems where direct memory access is a problem, like VRAM.

"Each can be split into multiple heaps and then customised independently," explains Vine. "Additionally, Elephant features pools that are extremely fast, fixed-size allocations especially suited to small objects required in games.

"A companion tool, Goldfish, allows you to monitor memory use in real-time and help track down memory leaks and fragmentation causes."

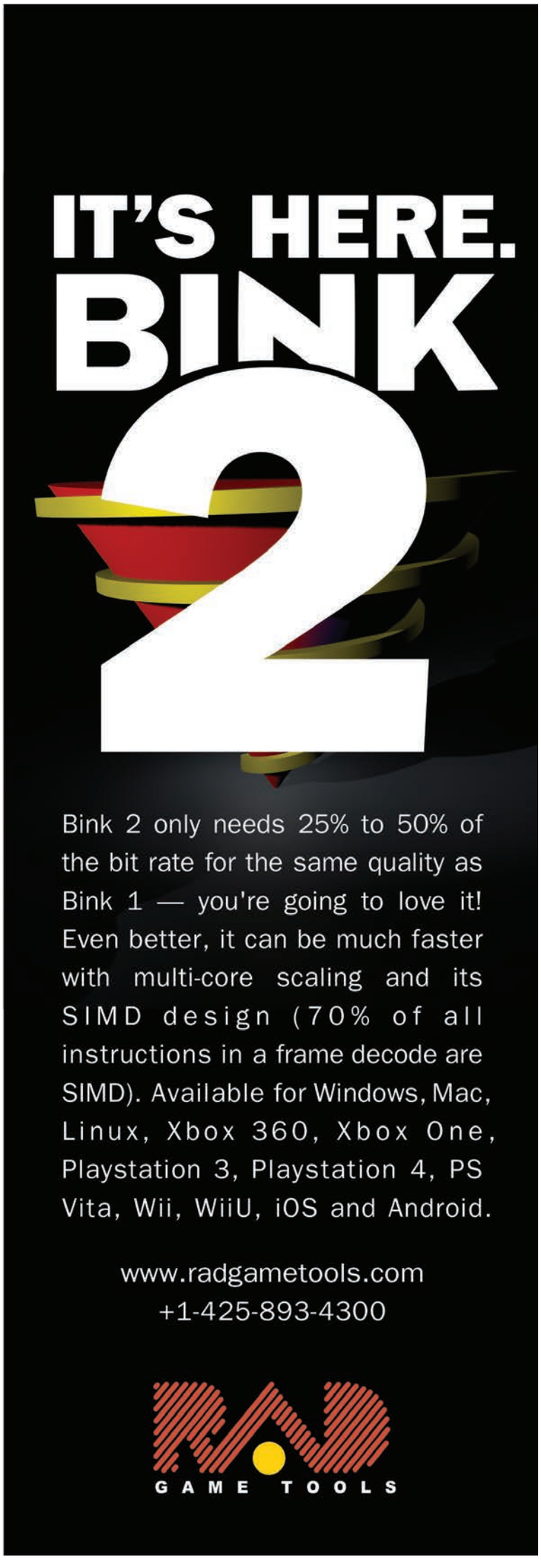
The tool has been in development for years. Most recently, the firm added the ability to capture user information in real-time via Goldfish and break down memory use on a hierarchical basis in an effort to speed up debugging and simplify memory optimisations.

Several licensing options are available for Elephant Memory Manager. Vine says typically it is licensed on a single use per platform basis, though an unlimited studio option is also available. He adds that it's also willing to customise requirements based on a customer's specific needs, should anything unique be required.

> ***"Elephant features pools especially suited to small objects required in games."***
>
> Darren Vine, Jury Rig Software

To date the tool has been used by companies including Ready At Dawn, Gameloft, Lucid Games and Egosoft.

Regarding further updates to the middleware, Vine says that, alongside some performance improvements up its sleeve, it's currently looking at enabling the support tool, while Goldfish is being ported to run on OSX and Linux, as well as Windows. ■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Why Marmalade Matters: The new Marmalade Platform streamlines access to the firm's services to provide a go-to solution for experienced developers and newcomers alike.
www.madewithmarmalade.com

The Marmalade Platform has been used to create a range of games, from SimCity: BuildIt (main) to SineWave (above) and Gods of Olympus (above right)

THE MARMALADE GAME engine has been used by many developers to create acclaimed titles for not only smart devices, but other platforms as well. However, while this began as the core of its offering, the firm has since branched out into other development tools and services.

Now the firm is streamlining somewhat by combining all of these services and its core technology into a one-stop solution for games developers: the Marmalade Platform.

"The Marmalade Platform draws together all of the Marmalade tools into a single install and provides an easy launchpad for game or app deployment onto mobile, tablet and desktop," explains CEO Harvey Elliott.

"Housed within the Marmalade Platform are our development tools for Core, which runs on C++ and Lua-based Quick, along with plenty of reference projects and sample code environments, and access points to integrate our Marmalade Cloud Services and Marmalade Asset Store products.

"We continue to deliver on our core tenets of small install sizes for apps, a fast and optimised runtime that can maximise native features, and an easily extensible framework that developers can build on themselves or tap into the developer community through our Answers page or Marmalade Asset Store, within an accessible and flexible platform architecture."

Elliott believes that not only will combining all of Marmalade's products into Platform provide developers with a go-to destination for their game-making needs, it will also help highlight the full breadth of tools and services that the company offers.

"We have such a plethora of technologies that we've already created for developers that we needed a framework through which they could be easily discovered and accessed," he says.

> ***"Many technologies were delivered inside our core SDK but were buried; these have now surfaced."***
>
> Harvey Elliott, Marmalade

"It will enable us to continue to extend our core offering of high-performance development tools, whilst providing additional solutions that make developing games easier.

"Many of our technologies were delivered inside our core SDK but were a little buried; these have now been surfaced through the new Marmalade Hub, the access point for the Marmalade Platform.

"Our new asset store provides an easy way for developers to both share assets and code that they've created and to access further technologies or assets that enable them to build their app in exactly the way they want. Many of the services within the asset store are free, to ensure developers get just the technologies or content that they need to speed their app development."

SET FOR THE FUTURE

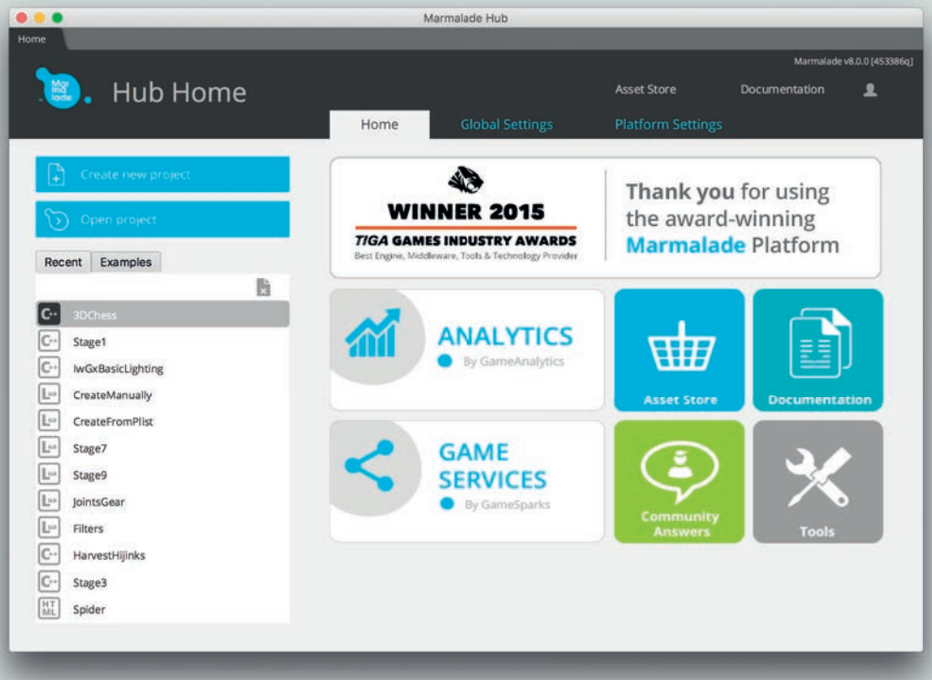
The Marmalade Platform is more than just a smart repackaging of existing products. The Marmalade team has made a number of key improvements and additions under the hood, such as the introduction of on-device debugging for Android and Visual Studio 2015 integration.

Other new features include beta technology for C++11, a significantly upgraded Marmalade Quick, an improved 3D development kit and new tools for 2D game devs in the beta of Marmalade's 2D Kit.

The company has also launched a new offering in recent months under the umbrella brand Marmalade Cloud Services. These give devs access to services that Marmalade hasn't traditionally provided, such as analytics and ads (*see 'Cloud Burst'*).

Marmalade's team is constantly building on these tools to better support the most important platforms for its customers: iOS, Android, Steam and, now, Windows 10. It also supports the growing number of TV platforms, such

Marmalade Technologies has combined all of its game-making tech into one solution, adding in new cloud services and extra support for devs. **James Batchelor** finds out more



as Chromecast, Roku and, soon, Apple TV, as well as key graphics pipelines such as Metal, DirectX 12 and the still-in-development Vulkan.

"If a device or platform introduces something interesting, we'll do everything we can to find a way to get developers access to it from our platform," says Elliott.

"Whilst we have obviously kept current devices in mind, we are very watchful of new and evolving markets including AR and VR, and developers approaching the games console market from within the mobile community – something that we expect to see much more of over the coming years as those technologies converge."

COMMUNITY SUPPORT

The hope is that not only will the Marmalade Platform make the company's technology more accessible and efficient for established customers, it will also attract a new wave of developers. As such, Marmalade has upped the ante on the effort going into support pages and blogs for anyone that may be a little confused by the Platform's tech.

Elliott says: "For developers new to Marmalade, or wanting to maximise their experience of the Marmalade Platform, they can find a full suite of documentation on our website – and a new tutorial series with webinars will be coming to our website, so that our customers can engage directly with our teams and get the most out of Marmalade for their game.

"We are proud of the new technology, and definitely think it's worth checking out for any developer – but perhaps the best reasons are the breadth of games and apps already made with our technology."

Those games include everything from EA's mobile hit *SimCity: BuildIt* and forthcoming mobile strategy game *Gods of Olympus* to indie rhythm action game *SineWave* – just three of the titles built with the technology that now ticks under the hood of the Marmalade Platform.

> ***"If a platform introduces something interesting, we'll do all we can to get developers access to it."***
>
> Harvey Elliott, Marmalade

"I am immensely proud of the team and the technology we've created so far, but there is still so much more we'd like to do," Elliott concludes. "If developers have an interesting challenge for something they'd like to see in our tech then we really do encourage them to get in touch."

And you can do so by emailing **hello@marmalademail.com** or by visiting **www.madewithmarmalade.com**. ■

CLOUD BURST

BACK IN September, Marmalade announced the first in a series of partnerships that would form a new offering known as Marmalade Cloud Services.

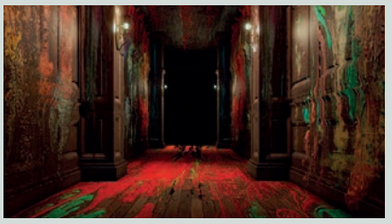
The partnership between the tools firm and GameSparks gave Marmalade users access to back-end tools to help devs introduce multiplayer and social functionality more efficiently.

This has since been followed by a similar deal with GameAnalytics, and more cloud services are said to be on the way.

"Marmalade Cloud Services are one of the best ways to help developers make more money from their apps," says CEO Harvey Elliott. "Developing and deploying a great app is only part of the challenge developers face and, as opposed to creating new technologies from scratch, we've looked for partners in the broader ecosystem that work well with our frameworks and philosophies.

"GameSparks and GameAnalytics each share our goals, but from their own unique perspectives. Whilst we all have premium solutions available to developers, the main driver is to get developers up and running quickly and effectively without having to buy tools or technologies they just don't need. The offerings through Marmalade Cloud Services are free, and a really easy way to help monetise and optimise apps in market."

Harvey Elliott (above) says the Marmalade Platform provides an easy launchpad for the firm's existing tools



UNITY FOCUS

Peeling away the Layers of Fear

We go behind-the-scenes and find out more about Unity's role in the creation of Bloober Team's horror game

Bloober Team had to invest in third-party plug-ins and abandon baked lighting to create the transforming mansion in Layers of Fear, says Michal Krol

PUTTING PLAYERS IN the shoes of an insane painter seeking inspiration for his greatest masterpiece, Bloober Team's *Layers of Fear* is an ambitious new take on the horror genre.

"We wanted to make something unique that would set us apart us from other developers," says game designer Michał Król. "The idea of playing a tormented and delirious painter let us go overboard with the visuals and psychedelic themes."

Król says Unity was "the obvious choice" when it came to choosing an engine to power those visuals, thanks to the team's prior experience with the tech.

Bloober was able to quickly build a prototype with *Layers*' core elements, and Unity's expandable and customisable editor became instrumental in this.

"Our graphics programmer, Mariusz, was able to use Unity 5's extensive renderer customisations to really push the visuals to their limits," says Król.

"He could freely rewrite the entire deferred shaders, as well as use Unity's command buffer features to create a deferred decals system, which is used quite extensively in our game.

"We also created a plug-in to verify whether levels are designed correctly. It tracks the most frequently-used options and checks them against what is implemented in the build, such as if any objects lack materials assigned to them."

The team also invested in plug-ins such as InControll to manage input and Pro Builder to make level design easier. But the most invaluable was playMaker.

"It helped take a huge chunk of work off our programmers' shoulders, giving the entire design team the tools necessary to script levels on their own," Król says. "Without it, we would have never been able to build *Layers* so well and so fast."

Central to *Layers of Fear*'s scares is the ever-changing layout of the painter's house, where rooms transform around the player without warning.

> ***"Without the playMaker plug-in, we'd never have built Layers of Fear so quickly."***
>
> Michał Król, Bloober Team

"The idea to shift the environment in real time was our main focus – we wanted to make players fear the unknown," says Król. "The lack of ability to predict what will happen behind the next door makes our game unique and keeps people in constant anticipation."

However, this proved to be the most troublesome aspect of the game's development. The team soon found a visible drop in performance when they tried to spawn a completely new scene, forcing them to be more inventive.

"One solution was to cut all the levels into smaller chunks, which would then load in the background of the current scene piece by piece," says Król.

"Also, because our game so often revolves around changing the entire room behind the player's back, we had to drop baked lighting altogether. The graphics programmer had to use custom light zones management and adjust the shaders' level of detail with the distance/quality settings."

Again, the playMaker plug-in proved to be invaluable.

"Using playMaker, one of our other designers, Paweł, simply created scenes where different layers of the same room would hide and appear whenever the player looked at an invisible trigger while standing in a specific spot," Król explains. "It's laughably easy to script and diabolically effective."

Bloober drew inspiration from a wide variety of horror experiences, from Kojima's *P.T.* to classic novel *The Picture of Dorian Gray*.

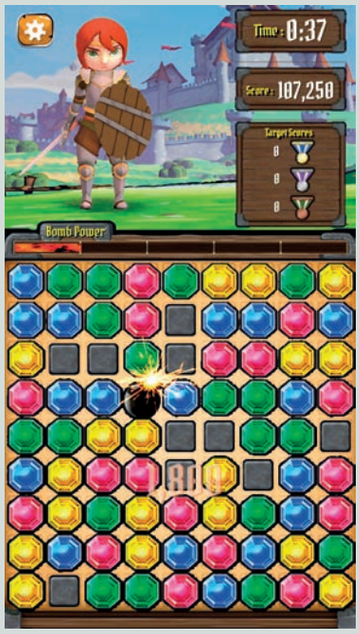
"Suffice to say, we here in Bloober Team almost 'breathe' horror," says Król. "We give it our own flavour and try to shake up horror fans around the globe." ■

Layers of Fear
Developer: Bloober Team
Publisher: Bloober Team
Platform: PC, Xbox One
www.blooberteam.com

UNREAL DIARIES

An Unreal focus on mobile developers

New app and learning resource follows on the heels of Unreal Engine 4.10



Unreal Match 3 includes resources to demonstrate how ads, achievements, in-app purchases and leaderboards work in a live UE4 environment

> ***Unreal Match 3 has been built from the ground up to teach developers how to make mobile games using Unreal Engine 4.***

WHILE DRIVING THE open development of *Unreal Tournament*, the closed online testing of *Fortnite* and the reveal of two new IPs – *Paragon* for PC, and *Spyjinx* for PC and mobile – Epic Games has launched Unreal Engine 4.10, while also preparing for the release of a new learning resource: Unreal Match 3, for iOS and Android.

Unveiled only a few months ago, Unreal Engine 4.9 brought sweeping upgrades for iOS and Android, and also introduced new features such as dynamic character shadows, movable point lights, and decals for mobile.

The newly-released Unreal Engine 4.10 brings increased stability and many fixes to the engine, not to mention a host of new mobile features, updates and scalability improvements.

Among its major features was full support for refraction effects on mobile platforms, optimised VR rendering for reduced GPU overheads when rendering for head-mounted displays and mobile material quality, allowing developers to scale their titles down to low-end devices without sacrificing image quality and performance on premium platforms.

On the horizon now is Unreal Match 3, built from the ground up to help developers learn how to make mobile games using Unreal Engine 4.

The standalone app is just one piece of the learning package, however: the full Unreal Match 3 project can be downloaded through the Epic Games launcher, and explored and utilised as desired.

Unreal Match 3 uses UE4 features such as the Unreal Motion Graphics (UMG) UI editor and the Paper 2D toolset.

With the Unreal Match 3 project, anyone can look through the game's Blueprint scripts, art assets and C++ code, and use the content for personal projects, commercial or otherwise.

The written and video learning resources accompanying Unreal Match 3 are also quite useful. In addition, for those who have ever wondered how UE4 supports ads, achievements, in-app purchases and leaderboards, the download shows how they work in a live environment.

Epic Games recently held an event: 'Unreal Engine 4 for Mobile Developers'. All of the sessions from the workshop, along with Unreal Match 3 training videos, can be viewed at **youtube.com/unrealengine**. ■

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KEY RELEASE

Painting with soul

Allegorithmic's 1.6 update introduce 'soul' to Substance Painter. But what's at the heart of the revised 3D art tool?

Allegorithmic VP Alexis Khouri believes the changes in Substance Painter 1.6 will allow artists to have more fun with their work

ALREADY ESTABLISHED AS a highly-regarded 3D painting tool despite yet not hitting its V2 release, Allegorithmic's Substance Painter has already found favour at creative powerhouses like DreamWorks and EA DICE.

Now, the 1.6 updated version is available, with a number of improvements and – so claims the company – a new 'soul'.

Top of the billing are improvements to the flow of the tool's texturing process, with an emphasis on 'smoothness'.

"The concept of smoothness is closely related to the pleasure of making art," explains Alexis Khouri, VP at Allegorithmic. "We want our tools to facilitate the work of artists and give them as much time as possible to express their creativity. A software that feels unstable, slow or laggy is the first reason to stop using it."

It's that attitude that many of the 1.6 update tweaks apply to workflow and responsiveness: a change bound to be popular with many digital artists.

"We improved the framerate while working in high resolution, and removed the number of clicks to perform common actions," details Khouri. "We also made some subtle tweaks in the painting process to provide a more empowering experience while working on fine details.

A RESOLUTION FOR CHANGE

With those changes to workflow also comes a bolstered devotion to 4K painting.

Khouri asserts that working in high resolutions is increasingly mandatory for the new generation of high-end games.

"Consoles such as PS4 and Xbox One can now handle much larger textures, and the coming VR projects will obviously require higher definition of materials as well."

Certainly, in the VR realm where the likes of resolution and framerate have a tangible impact on the quality of interaction, high resolution artwork will have an increasingly vital role to play.

Khouri is also keen to state the impact of the improvements to fully seamless mask generators that the 1.6 update introduces; something the Allegorithmic team are confident introduces a thoughtful solution to a challenge that exists at the frontlines where 2D and 3D meet.

"We modified most of our mask generators to make them seamless by using our tri-planar projection filter," he explains. "One of the main reasons for using 3D painting is to avoid seams between the UV elements. However, it can become tricky while using procedural 2D filters such as the masks generators, and we wanted to provide a smart workaround to handle this smoothly."

A SOUL OF SUBSTANCE

The 1.6 update to Substance Painter introduces new scan-based smart materials to its library, with a view to providing high-quality presets by default.

"Scan-based smart materials provide fine details coming from real life data, especially when the art style is targeting photorealism," says Khouri. "The great thing is that you can start from the existing scan-based materials and create endless variations out of them thanks to the Substance technology: no need for a huge database of pre-made materials to populate a massive environment."

But what of that 'soul' 1.6 promises to bring to Substance Painter users? While Khouri admits it's not the most conventional description of a art tool, he does believe 'soul' captures something important to the creative process and the 1.6 update: that painting, whether on canvas or in pixels, should be pleasant for its artists.

"Lots of people are actually telling us that texturing has become the most enjoyable part of their asset creation process since they started using Substance Painter," offers the Allegorithmic VP.

Khouri is confident enjoyment will comprise part of the impact embracing Substance Painter 1.6 will have on any games studio adopting the technology.

"People evaluating Substance Painter will have the nice feeling of using a tool dedicated to texturing, not a subset or a plug-in of another software," he concludes. "Substance Painter 1.6 is made for the new generation of 3D artists who want to spend most of their time creating and having fun, instead of struggling against a clumsy workflow." ■

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> ***"Many apps lack exposure – a video can go a long way towards fixing that."***
>
> Chris Correia, Trailer Squad

While trailers are its main staple, it also creates promotional screenshots, teasers, app explainer videos, pitches and any other audio-visual for marketing needs.

"We are geared toward indie devs," says Trailer Squad's Chris Correia.

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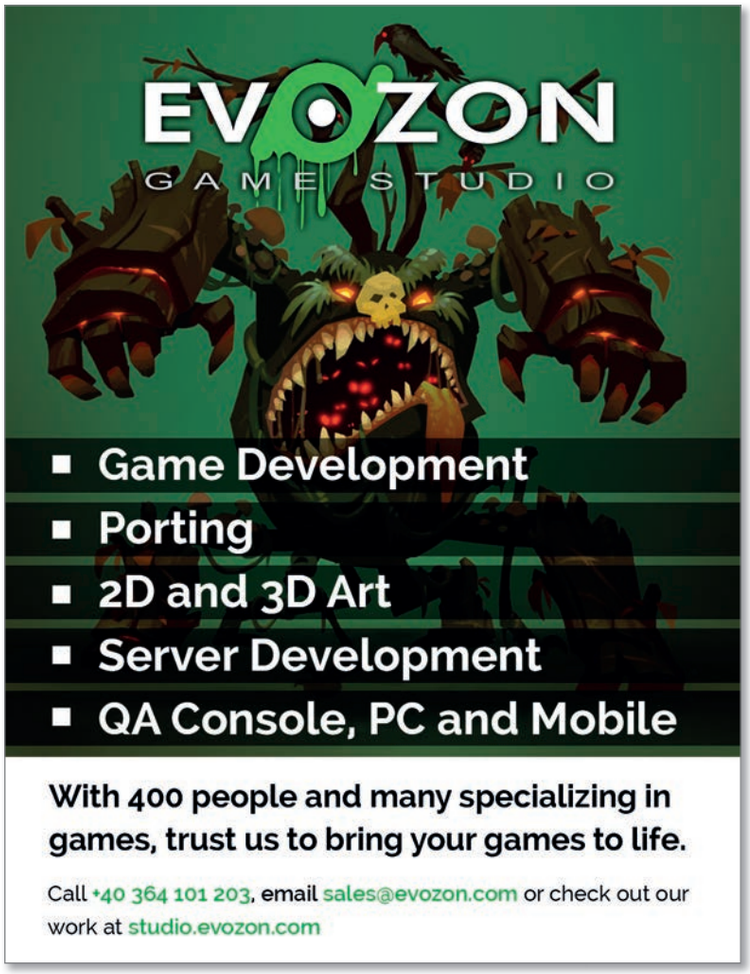
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"This means we are super flexible when it comes to pricing. I'd venture so far as to say we're the most cost-effective solution for devs that don't want to compromise on quality. We don't have the huge overhead of some companies and communication with us is very direct without middlemen. We even offer a 50 per cent discount for first time solo devs."

Correia adds that the main reason the team focuses on supporting small developers is the personal connection that these developers have with their games, and it's something Trailer Squad wants to be a part of.

"Smaller devs are also agile like us, making the whole process move along swiftly," he says.

The team has worked on a number of different games in the past, typically on mobile, although it has also worked on PC titles.

Its projects include Toge Productions' *Infectonator: Survivor*, Winged Cloud's *Sakura Clicker*, Armor Games' *Soda Dungeon* and *Battle Orbs*.

For one of its projects, Bitporters' mobile multiplayer zombie survival game *Zombie Town Ahh*, the team provided much of its marketing materials, to significant success.

"He came to us for help with promoting his game, which was already out on the Play store with a basic video and some screenshots," says Correia.

"We created several sleek promo screenshots and the app store icon together with a brand new trailer using the 3D assets of his game for some cool animations.

"The results were really positive for him; the game's install rate doubled in a matter of days and the trailer has over 10,000 views on YouTube, which is really good for his particular case."

> ***"We helped Zombie Town Ahh double its install rate in a matter of days."***
>
> Chris Correia, Trailer Squad

Looking ahead, Trailer Squad says while it has worked mostly with games to date, it has ambitions to bring its services to other apps too.

"There are many interesting apps out there that get overlooked because they lack exposure – a great video can go a long way towards fixing that," says Correia. ■

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New Year's Resolutions

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With 2015 behind us, we look to the future and ask developers what they hope to accomplish in the year ahead

Alex Ward, Director & Co-founder, Three Fields Entertainment

"Smash the future – oh, and finish and release our first game here at Three Fields."

Andy Tudor, Creative Director, Slightly Mad Studios

"2016 is all about knuckling down to fulfil our promises from 2015, continuing to grow the *Project CARS* franchise, expanding further within eSports, and continuing to push new technologies like VR and 8K. All whilst expanding my house, having another baby, and passing my karate black belt. Gonna be another busy year."

David Bailey, Business Developer, Fortune Fish

"Blame myself less and my teammates more for *League of Legends* losses. And actually play every game on my Steam account."

Jeff Hardy, CEO, F84 Games

"To always trust my gut... and the data. Work to find a happy place between what I want to do and what the numbers say I should."

Mitu Khadaker-Kokoris, Commanding Officer, The Tiniest Shark

"It's all too easy to make long lists of New Year's Resolutions which become very difficult to keep, so this year, I have just one: ship it."

Mariina Hallikainen, CEO, Colossal Order

"To lead Colossal Order's team to the finals in the World Championships of Academic Kyykkä in February, to focus on bringing the attention to the Chirper it deserves during the year – and to buy myself a new horse."

Simon Hade, COO & Co-founder, Space Ape

"Having just moved into new offices, we've resolved to fill them up. Our aim is 50 new hires over the next 12 months. Plus, we're launching a new strategy game in partnership with a major brand, and two new games in brand new genres."

Simon Bennett, Director, Roll7

"To not pummel ourselves silly at the dark depths of a concurrent two-game development nightmare again."

Shahid Ahmad, independent developer

"To develop and release a video game that people will enjoy and remember."

Andrew Oliver, CTO, Radiant Worlds

"Remember to embrace and entertain the entire possible audience that wants to play our game – wherever they are and whatever skill level they're at."

Siobhan Reddy, Studio Director, Media Molecule

"Get *Dreams* out to the community, so that we can start seeing what people do with our new chapter of creative gaming."

Vincent Diamante, Audio Director, thatgamecompany

"This coming year, I resolve to finish working on this latest internal milestone without getting distracted by the newest, latest, greatest add-on library, piece of technology, new methodology... Screw it. It's just too shiny."

Philip Oliver, CEO, Radiant Worlds

"Always remembering the power of a passionate community exceeds any development teams capacity, and to embrace and harness that passion."

Hannes Seifert, Studio Head, IO Interactive

"To bring *Hitman* closer to our fans than ever before, and to continue to release content, refine the experience and engage with the players throughout next year."

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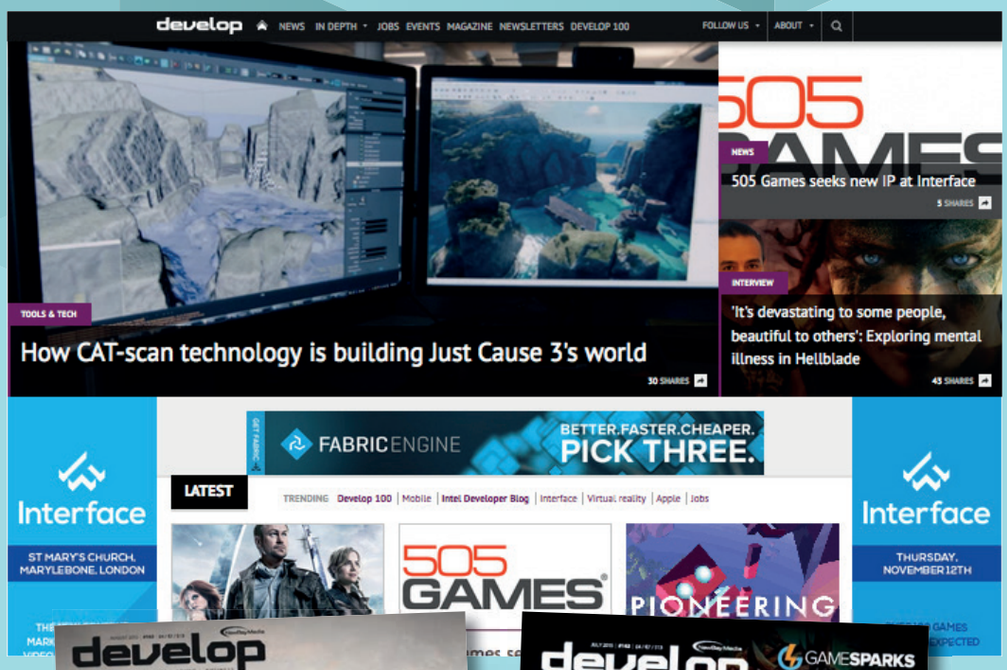

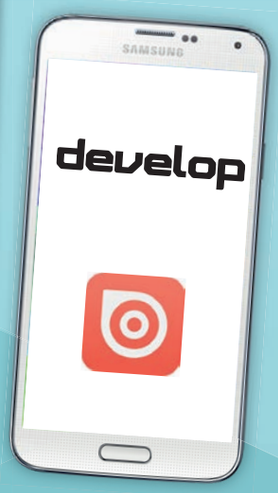

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